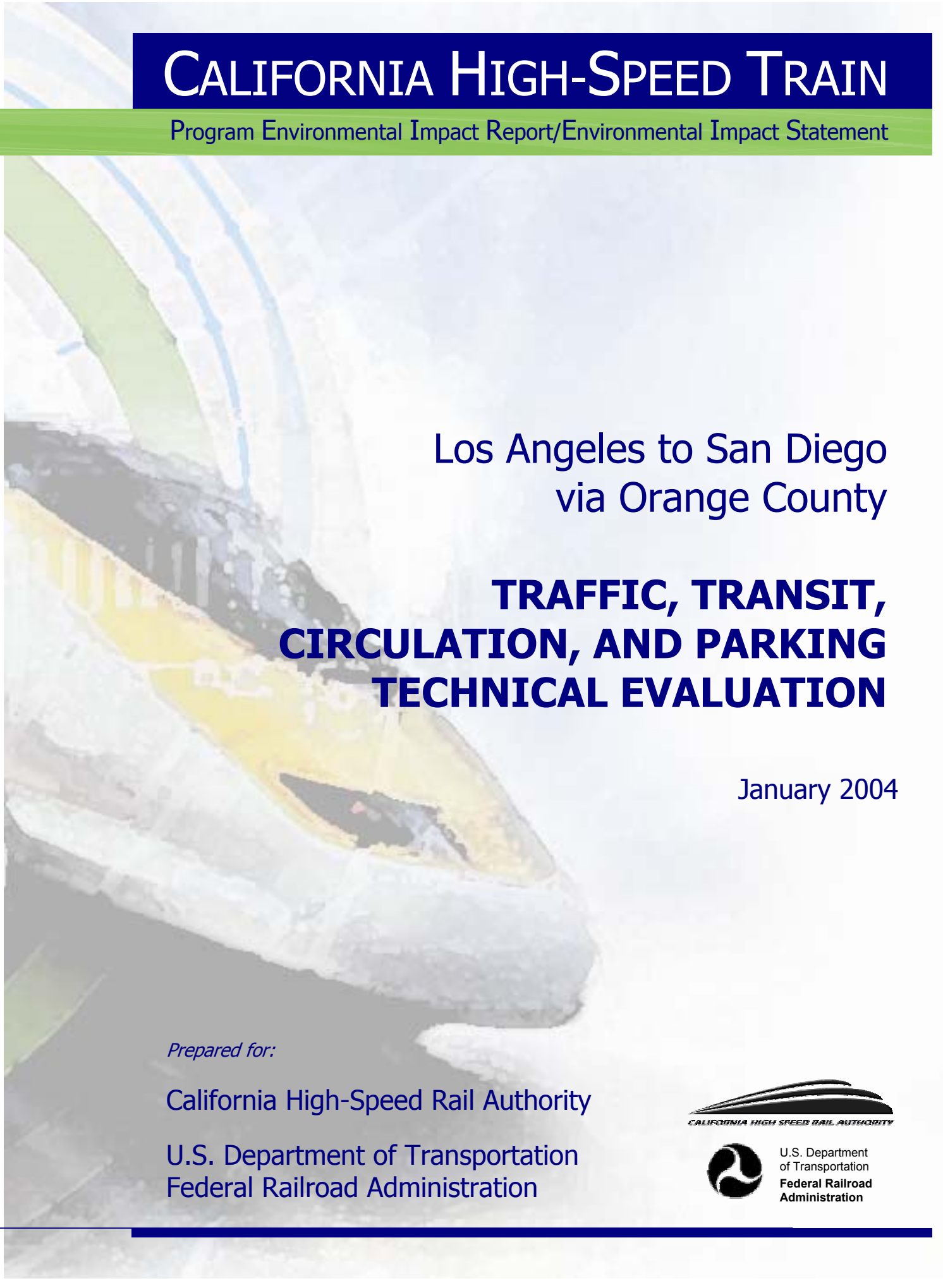
CALIFORNIA HIGH-SPEED TRAIN

Program Environmental Impact Report/Environmental Impact Statement



Los Angeles to San Diego via Orange County

TRAFFIC, TRANSIT, CIRCULATION, AND PARKING TECHNICAL EVALUATION

January 2004

Prepared for:

California High-Speed Rail Authority

U.S. Department of Transportation
Federal Railroad Administration

CALIFORNIA HIGH SPEED RAIL AUTHORITY

U.S. Department of Transportation
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CALIFORNIA HIGH-SPEED TRAIN PROGRAM EIR/EIS

Los Angeles to San Diego via Orange County

Traffic, Transit, Circulation, and Parking Technical Evaluation

Prepared by:

IBI Group

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ACRONYMS

AUTHORITY	CALIFORNIA HIGH-SPEED RAIL AUTHORITY
BNSF	BURLINGTON NORTHERN SANTA FE RAILWAY
CALTRANS	CALIFORNIA DEPARTMENT OF TRANSPORTATION
CEQA	CALIFORNIA ENVIRONMENTAL QUALITY ACT
COG	COUNCIL OF GOVERNMENTS
EIR	ENVIRONMENTAL IMPACT REPORT
EIS	ENVIRONMENTAL IMPACT STATEMENT
EPA	ENVIRONMENTAL PROTECTION AGENCY
FAA	FEDERAL AVIATION ADMINISTRATION
FHWA	FEDERAL HIGHWAY ADMINISTRATION
FRA	FEDERAL RAILROAD ADMINISTRATION
FTA	FEDERAL TRANSIT ADMINISTRATION
HCM	HIGHWAY CAPACITY MANUAL
HST	HIGH SPEED TRAIN
LACMTA	LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY
LADOT	LOS ANGELES DEPARTMENT OF TRANSPORTATION
LBT	LONG BEACH TRANSIT
LOS	LEVEL OF SERVICE
LOSSAN	SAN LUIS OBISPO – LOS ANGELES – SAN DIEGO
MPH	MILES PER HOUR
MTDB	SAN DIEGO METROPOLITAN TRANSIT DEVELOPMENT BOARD
NCTD	NORTH COUNTY TRANSIT DISTRICT (SAN DIEGO)
NEPA	NATIONAL ENVIRONEMENTAL POLICY ACT
OCTA	ORANGE COUNTY TRANSPORTATION AUTHORITY
RTP	REGIONAL TRANSPORTATION PLAN
SANDAG	SAN DIEGO ASSOCIATION OF GOVERNMENTS
SCAG	SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS
SCRRA	SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY (METROLINK)
SDTI	SAN DIEGO TROLLEY, INC.
UP	UNION PACIFIC RAILROAD
USDOT	UNITED STATES DEPARTMENT OF TRANSPORTATION
UTC	UNIVERSITY TOWNE CENTRE
V/C	VOLUME TO CAPACITY

1.0 INTRODUCTION

The traffic, transit, circulation and parking analyses for this program-level EIR/EIS were focused on a broad comparison of potential impacts to traffic, transit, circulation and parking along corridors for each of the alternatives (modal and high-speed train alternatives) and around stations. The potential impacts for each of these alternatives were compared with the No-Project/No-Action Alternative.

Highway, roadways, passenger transportation services (bus, rail, air, intermodal), transit facilities, goods movements and parking issues were evaluated in the analyses. Transportation facilities, highways and roadways included in the analyses: 1) serve as the primary means of access to proposed rail stations and airport facilities as well as highway/roadway improvements/new facilities in the Modal Alternative; and 2) are within one mile of proposed rail stations and (in the Modal Alternative) airports and major routes along alignment/highway corridors.

Initial analysis included identifying primary routes to be considered including highways designated in the No-Project and Modal alternatives and all modes of access to the stations areas and airport areas in the Modal and HST Alternatives, respectively. The primary routes/modes of access for the stations and airports considered assumptions for distribution of trips by direction.

Once primary routes were identified, screenlines or cordons combining segments of the primary routes which reasonably represent locations for evaluating in the aggregate baseline traffic and public passenger transportation conditions (using data for 2002, 2020 or other similar years as available) in the morning peak-hour were selected. No new traffic counts were made where data was not available, and the respective MPO regional travel forecasting models were assumed sufficiently accurate for purposes of forecasting traffic on the screenlines or cordons chosen. Baseline (2002 and 2020 as available data allowed) ratios of demand to capacity across each screenline or cordon for roadway and public transportation facilities were then established using Highway Capacity Manual standards for capacity.

Next, baseline conditions (2002, 2020) were characterized for goods movement (truck/freight) in the general area of study (primarily to identify key goods movement means/corridors) and for parking in the vicinity of stations and airports. Parking conditions are based on any 2002 parking reserves, local plans for major parking expansion, and adequacy of local parking codes for meeting No-Project growth in demand.

Trip generation was then calculated by adding to baseline volumes forecasted 2020 demand for high-speed rail and (for the Modal alternative) airports, or highways comprising alternatives, plus local trips in 2020 generated by project-related development (as data are available) and trips due to induced growth. Additional trips were distributed to the identified screenlines or cordons (roadway and public transportation) and those trips were added to the appropriate baseline volumes for each screenline or cordon. Next, additional trips were distributed for selected segments/links on primary regional routes and modes of access to stations and similar facilities by adding No-Project volumes obtained from 2020 forecasts (from regional and local agencies), and 2020 travel demand generated by alternatives, to the key accessing facilities (roadways, transit links). This distribution was done at a screenline level to reduce the subjectivity of assigning trips to specific facilities.

Summary tables for the region were then completed that identify impacts on highways/roadways (at screenline), public transportation services, goods movement, and parking facilities. Highway/roadway impacts are compared by volume to capacity (V/C) ratios and Levels of Service (LOS). The impacts on public transportation services, goods movement, and parking facilities are described and ranked as 'high', 'medium', or 'low' in the summary table according to the potential extent of change to transit, circulation and parking.

1.1 ALTERNATIVES UNDER CONSIDERATION

1.1.1 No-Project Alternative

The No-Project Alternative serves as the baseline for the comparison of Modal and High-Speed Train alternatives (Figure 1.1-1 at the end of Section 1.1). The No-Project Alternative represents the state's transportation system (highway, air, and conventional rail) as it existed in 1999-2000 and as it would be after implementation of programs or projects currently programmed for implementation and projects that are expected to be funded by 2020. The No-Project Alternative addresses the geographic area serving the same intercity travel market as the proposed high-speed train (generally from Sacramento and the San Francisco Bay Area, through the Central Valley, to Los Angeles and San Diego). The No-Project Alternative satisfies the statutory requirements under CEQA and NEPA for an alternative that does not include any new action or project beyond what is already committed.

The No-Project Alternative defines the existing and future statewide intercity transportation system based on programmed and funded (already in funded programs/financially constrained plans) improvements to the intercity transportation system through 2020, according to the following sources of information:

- State Transportation Improvement Program (STIP)
- Regional Transportation Plans (RTPs) for all modes of travel
- Airport plans
- Intercity passenger rail plans (California Rail Plan 2001-2010, Amtrak Five- and Twenty-year Plans)

Recent history and the uncertainties of transportation financing in California point to a reality that many of the improvements identified in those plans will not be implemented, even by 2020. That notwithstanding, the No-Project Alternative is the best projection that can be made of year 2020 conditions, based on current local and regional planning policy.

As with all of the alternatives, the No-Project Alternative will be assessed against the purpose and need topics/objectives for congestion, safety, air pollution, reliability, and travel times.

1.1.2 Modal Alternative

There are currently only three main options for intercity travel between the major urban areas of San Diego, Los Angeles, the Central Valley, San Jose, Oakland/San Francisco, and Sacramento: vehicles on the interstate highway system and state highways, commercial airlines serving airports between San Diego and Sacramento and the Bay Area, and conventional passenger trains (Amtrak) on freight and/or commuter rail tracks. The Modal/System Alternative consists of expansion of highways, airports, and intercity and commuter rail systems serving the markets identified for the High-Speed Train Alternative. (Figures 1.1-2 and 1.1-3 at the end of Section 1.1) The Modal Alternative uses the same inter-city travel demand (not capacity) assumed under the high-end sensitivity analysis completed for the high-speed train ridership in 2020. This same travel demand is assigned to the highways and airports and passenger rail described under the No-Project Alternative, and the additional improvements or expansion of facilities

is assumed to meet the demand, regardless of funding potential and without high-speed train service as part of the system.

The Modal Alternative adds capacity in discrete amounts to roadways and airports throughout the state. With the implementation of such an alternative, the traveling public is likely to respond to this new capacity by making use of the improved facilities for all trips; not just intercity trips. For example, on roadways where capacity is added traffic congestion may well be eased, making a particular roadway more attractive a route for travel than it had been previously; this new traffic will not necessarily be only intercity traffic but rather shorter trips within a region. An analogous situation at airports would be where transcontinental or international flights make use of the capacity that was added to meet the intercity demand. In the case of both roadways and airports, it is entirely possible that as the forecasted intercity demand is realized it will compete for capacity with non-intercity traffic in the air and on the road. This phenomenon cannot be evaluated quantitatively at the scale of this analysis; suffice it to say that the assessment of the Modal Alternative is likely to give an optimistic picture of the consequences of adding capacity to roadways and airports in terms of congestion and level of service.

1.1.3 High-Speed Train Alternative

The Authority has defined a statewide high-speed train system capable of speeds in excess of 200 miles per hour (mph) (320 kilometers per hour [km/h]) on dedicated, fully grade-separated tracks, with state-of-the-art safety, signaling, and automated train control systems. State of the art high-speed steel-wheel-on-steel-rail technology is being considered for the system that would serve the major metropolitan centers of California, extending from Sacramento and the San Francisco Bay Area, through the Central Valley, to Los Angeles and San Diego. (Figure 1.1-4 on the following page)

The High-Speed Train Alternative includes several corridor and station options. A steel-wheel on steel-rail, electrified train, primarily on exclusive right-of-way with small portions of the route on shared track with other rail is planned. Conventional "non-electric" improvements are also being considered along the existing LOSSAN rail corridor from Los Angeles to San Diego. The train track would be either at-grade, in an open trench or tunnel, or on an elevated guideway, depending on terrain and physical constraints.

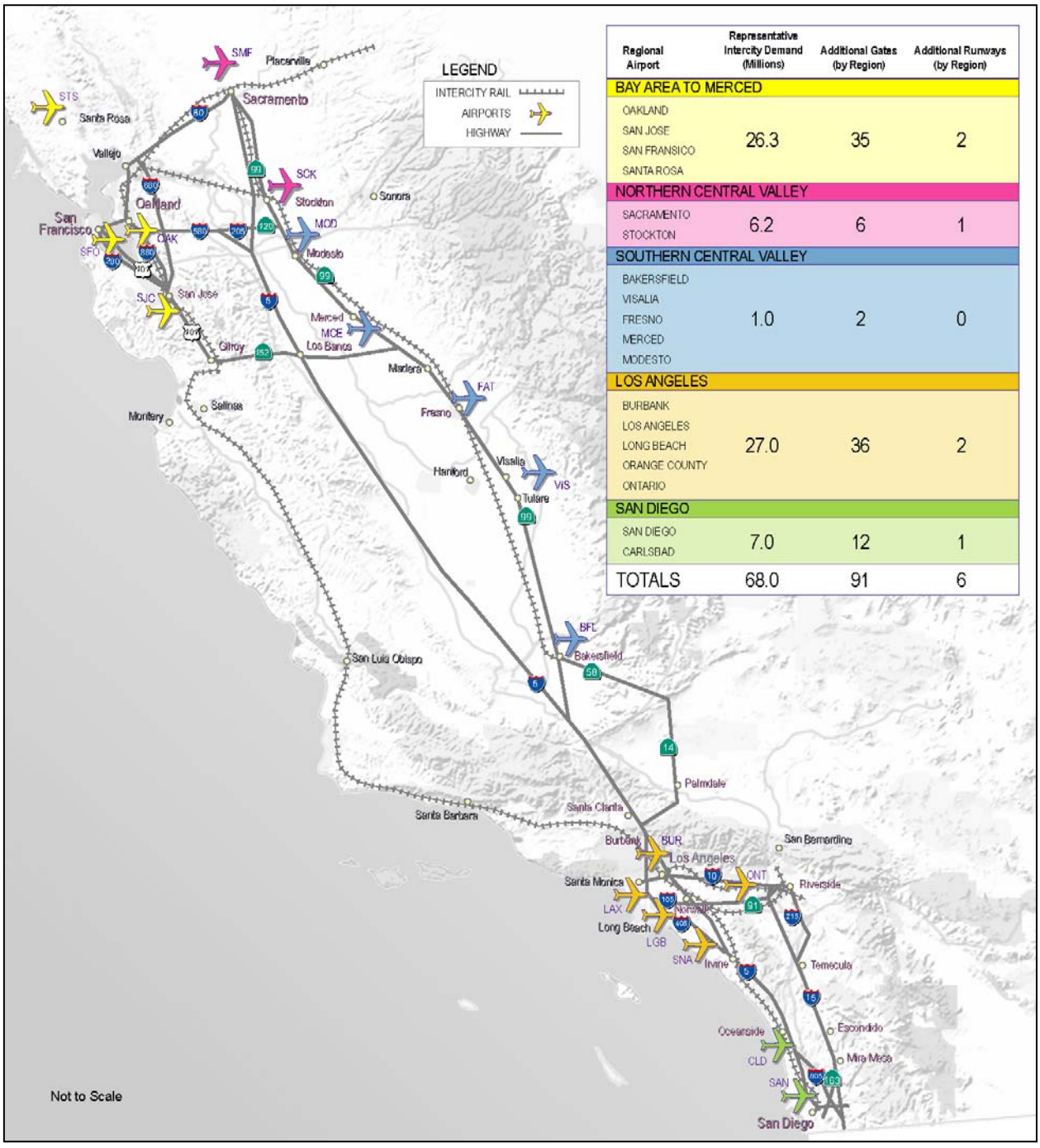
For purposes of comparative analysis the HST corridors will be described from station-to-station within each region, except where a by-pass option is considered when the point of departure from the corridor will define the end of the corridor segment.

As intercity trips are diverted to the proposed HST system, the highway and aviation facilities will initially become less congested. The traveling public is likely to respond to this newly available capacity by making use of the facilities for all trips; not just intercity trips, similar to the situation described for the additional capacity in the Modal Alternative. Again, this phenomenon cannot be evaluated quantitatively at the scale of this analysis; suffice it to say that the assessment of the HST Alternative is likely to give an optimistic picture of the consequences of relieving congestion on roadways and airports in terms of level of service.

Figure 1.1-1
No-Project Alternative - California Transportation System

Figure 1.1-2
Modal Alternative - Highway Component

Figure 1.1-3
Modal Alternative - Aviation Component



Regional Airport	Representative Intercity Demand (Millions)	Additional Gates (by Region)	Additional Runways (by Region)
BAY AREA TO MERCED			
OAKLAND SAN JOSE SAN FRANSICO SANTA ROSA	26.3	35	2
NORTHERN CENTRAL VALLEY			
SACRAMENTO STOCKTON	6.2	6	1
SOUTHERN CENTRAL VALLEY			
BAKERSFIELD VISALIA FRESNO MERCED MODESTO	1.0	2	0
LOS ANGELES			
BURBANK LOS ANGELES LONG BEACH ORANGE COUNTY ONTARIO	27.0	36	2
SAN DIEGO			
SAN DIEGO CARLSBAD	7.0	12	1
TOTALS	68.0	91	6

Figure 1.1-4
High-Speed Train Alternative – Corridors and Stations for Continued Investigation

Figure 1.3-2 Alignments & Construction Type by Segment – LAX to Anaheim

Figure 1.3-3 Alignments & Construction Type by Segment – Anaheim to Oceanside

Figure 1.3-4 Alignments & Construction Type by Segment – Oceanside to San Diego

2.0 BASELINE / AFFECTED ENVIRONMENT

2.1 STUDY AREA

The study area for the Los Angeles to San Diego via Orange County segment of the statewide High Speed Train System stretches from Los Angeles International Airport (LAX) to Downtown San Diego, a distance of approximately 141 miles (226 km). This segment is unique from the other High Speed Train segments under study in that a non-electrified alternative is being studied that would consist of a shared use right-of-way with existing freight and commuter rail services and would continue to use conventional passenger rail equipment. For this segment, a total of four build alternatives are being studied. These alternatives have been broken down into three sections, which are LAX to the Los Angeles Union Passenger Terminal (Union Station), Union Station to Anaheim via the Union Pacific Santa Ana Subdivision, and Union Station to Irvine via the existing Los Angeles to San Diego (LOSSAN) rail corridor. This non-electrified alternative, which would incorporate various incremental improvements along the corridor, is the only alternative being studied which would travel the entire distance from Union Station in Los Angeles to the Santa Fe Depot in San Diego.

2.1.1 Rail Stations, Airports and Highways to be Studied

This section lists and describes the scenario alternatives under consideration for this segment of the statewide study. As previously mentioned, these alternatives include a No-Project, Modal, and High Speed Train scenario.

No-Project and Modal Alternatives

As stated in Section 1.2.2, three modes of transportation are considered in the Modal Alternative. However, for the purposes of the Los Angeles to San Diego via Orange County segment of the High Speed Train network, only two modes of transportation were examined. The fourth build alternative for the High Speed Train already looks at incremental improvements to the existing conventional rail service as part of a feeder system to the high-speed train network, it was not seen as necessary to include these improvements in this section.

A. HIGHWAYS

A limited number of intercity highways within the Los Angeles, Orange, and San Diego County region connect these three metropolitan areas. For simplicity, only Interstate 5 has been identified as part of the intercity highway component between Los Angeles Union Station and San Diego.

For the corridor leg between Los Angeles Union Station and LAX, Interstate 110 and Interstate 105 have been selected as the most direct highway links between the two destinations.

B. AIRPORTS

Los Angeles International Airport and Long Beach Municipal Airport are the only two major commercial airports being analyzed as part of the modal alternative for the Los Angeles to San Diego via Orange County segment of the High Speed Train system. San Diego International Airport (Lindbergh Field) is being studied as part of the Los Angeles to San Diego via the Inland Empire segment of the statewide network.

High Speed Train Alternative

Two technology alternatives are being analyzed as part of the High Speed Train build alternative. The first includes an electrified High Speed Train, which will form part of the proposed statewide network. The second alternative being studied is a non-electrified feeder service, which would consist of improvements to the existing passenger rail system using conventional equipment, with a transfer connection to the statewide High Speed Train system in Central Orange County.

A. ELECTRIFIED HIGH SPEED TRAIN

Three segments of Los Angeles to San Diego via Orange County corridor are being studied for use with the dedicated electrified High Speed Train. Within these three segments, five potential High Speed Train stations are being considered. These include LAX, Norwalk (along the Union Pacific Santa Ana Subdivision), Norwalk (at the existing Metrolink station along the LOSSAN Corridor), Anaheim and Irvine (both located at the existing Transportation Centers).

B. NON-ELECTRIFIED PASSENGER RAIL ALTERNATIVE

The non-electrified alternative would not include a dedicated link to LAX, and would travel along the existing Los Angeles to San Diego rail corridor through Orange County. This alternative looks at improvements to the existing intercity passenger rail stations, which include Fullerton, Anaheim, Santa Ana, Irvine, San Juan Capistrano, Oceanside, Solana Beach, and San Diego. A new station at University Towne Centre (UTC) in San Diego is examined in this alternative, as is providing intercity rail service to the existing Norwalk Metrolink station.

2.2 GENERAL DESCRIPTION OF TRANSPORTATION FACILITIES

Four types of transportation facilities are analyzed in this study, these include airports, freeways and highways, local arterials, and public transportation systems and related facilities.

2.2.1 Freeways and Highways

Between Los Angeles International Airport (LAX) and Union Station, several primary highways and freeways are available for travel use. However, Interstate 105 and Interstate 110 are the most direct freeway routes linking the two locations.

Interstate 5 is the only major freeway or highway, which parallels the existing and proposed rail corridors from downtown Los Angeles to San Diego through Orange County. This facility is the most direct and reasonable highway option.

2.2.2 Local Arterials

A number of local arterials provide access to the existing and proposed station locations throughout the study area. The arterials that were selected are within a one-mile radius of each station location, and a short summary of the characteristics of these arterials is provided below.

A. LOS ANGELES INTERNATIONAL AIRPORT

Century Boulevard: Century Boulevard is the primary arterial serving the terminals of Los Angeles International Airport. Century is an 8-lane, divided arterial with surrounding land use that includes higher-density commercial and hotels related to the airport.

La Tijera Boulevard: La Tijera is a 4-lane, undivided arterial and travels northeast from Sepulveda Boulevard, just north of the proposed station. Surrounding land use is primarily small commercial businesses and suburban residential neighborhoods.

Lincoln Boulevard: Currently, Lincoln is a 6-lane, divided arterial within the study area. Land use surrounding the arterial includes small suburban residential neighborhoods and designated park and open space. The open space is related directly to the airport.

Sepulveda Boulevard: Sepulveda is the primary arterial through this study area. It is a north-south arterial, which is 6-lanes and divided south of LAX, 10-lanes and divided through LAX, and 6 lanes and divided north of Lincoln Boulevard. The surrounding land use along the arterial consists of higher density commercial space and hotels, similar to other areas adjacent to the airport.

Westchester Parkway: Westchester Parkway skirts the northern border of the airport and study area. It is a 4-lane, divided arterial west of Sepulveda and primarily a 4-lane, undivided arterial east of Sepulveda. A portion of the street west of Airport Boulevard is 6-lanes, undivided. Surrounding land use consists of small suburban residential neighborhoods and designated parking and additional open space related to the airport.

B. LONG BEACH MUNICIPAL AIRPORT

Lakewood Boulevard: Lakewood is a primary 8-lane, divided arterial through the study area. It is the primary north-south access to the Long Beach Airport, and provides access to the airport parking facilities. Much of the surrounding land use is oriented towards the aerospace industry.

Spring Street: Spring Street is a 4-lane, divided arterial east of Clark Avenue, 7-lanes between Clark and Lakewood Boulevard, and 4-lanes west of Lakewood. The surrounding land use is primarily office commercial or aerospace oriented, with some residential developments towards the east.

Wardlow Road: Wardlow is a 4-lane, divided arterial, which provides direct access into the terminal area for Long Beach Airport. Most of the surrounding land use along Wardlow, east of the Airport Terminal is residential.

C. NORWALK METROLINK STATION

Bloomfield Avenue: Bloomfield is a 4-lane, undivided arterial north of Imperial Highway and a 4-lane divided highway south of Imperial Highway. Bloomfield passes through both residential and light industrial land uses.

Imperial Highway: Imperial is the primary east-west arterial through Norwalk. It is a 6-lane, divided arterial west of the existing rail corridor and between the rail corridor and Shoemaker Avenue. Imperial becomes a 4 lane, divided arterial east of Shoemaker Avenue. Imperial traverses primarily light industrial and commercial land uses, with some residential just west of the existing Metrolink station.

Norwalk Boulevard: Norwalk is one of the primary north-south arterials in the City of Norwalk. It is a 6 lane, divided arterial located west of the existing Metrolink station, and travels through primarily commercial and residential land uses within the study area.

Shoemaker Avenue: Shoemaker is a 4-lane, undivided arterial north of Imperial Highway and south of the existing rail corridor and a 2-lane, undivided arterial between the rail corridor and Imperial. Currently, the arterial does not cross the rail corridor. Shoemaker travels through primarily both light and heavy industrial developments, with some residential located to the east.

D. PROPOSED NORWALK HIGH SPEED TRAIN STATION

Firestone Boulevard: Firestone Boulevard is a 4-lane, divided arterial that travels diagonally to the surrounding arterials, and roughly parallels Interstate 5. Firestone passes through primarily light industrial, but does traverse portions of residential communities towards Interstate 605. Firestone parallels the existing right-of-way of the Union Pacific Santa Ana Branch Line.

Foster Road: Foster is a local arterial within the City of Norwalk that is 2-lanes, undivided west of Studebaker Road and 4-lanes, undivided east of Studebaker. Foster provides an important east-west link from Pioneer Boulevard to the Norwalk Metro Green Line and Park & Ride station at the interchange with Interstates 105 and 605. Land use consists almost exclusively of low-density residential developments.

Imperial Highway: Imperial is a major 6-lane, divided arterial through the City of Norwalk, which traverses primarily light industrial and commercial land uses.

Pioneer Boulevard: Pioneer is a major 4-lane, divided arterial through the City of Norwalk that travels through primarily commercial and residential land uses.

Studebaker Road: Studebaker is a 4-lane, divided arterial. The land uses surrounding Studebaker consist primarily of residential, with some light commercial and industrial developments.

E. FULLERTON TRANSPORTATION CENTER

Chapman Avenue: Within the study area, Chapman is a 4-lane, divided arterial, which runs east-west, north of the Fullerton Transportation Center. The surrounding land use consists primarily of retail commercial and residential. Fullerton Community College is located off Chapman Avenue, at the intersection of Lemon Street.

Commonwealth Avenue: Within the study area, Commonwealth is a 4-lane, divided arterial, which runs east-west, directly adjacent to and north of the Fullerton Transportation Center. The surrounding land use consists primarily of retail commercial and residential. Commonwealth is the primary east-west arterial which serves the Fullerton Transportation Center.

Harbor Boulevard: Harbor is the primary north-south arterial which serves the existing Transportation Center. Harbor is a 4-lane, divided arterial with surrounding land uses that consist primarily of retail commercial and residential.

Lemon Street: Lemon is a 4-lane, divided arterial, which runs north-south, just east of the existing Transportation Center. The surrounding land use consists primarily of retail commercial, light industrial and some residential.

Orangethorpe Avenue: Orangethorpe is a 4-lane, divided arterial, which runs east-west, south of the Transportation Center. Surrounding land uses consist primarily of residential and some retail commercial to the west of Harbor and retail commercial east of Harbor, as the arterial approaches the rail corridor the land use changing to light industrial.

F. ANAHEIM TRANSPORTATION CENTER

Katella Avenue: Katella is a 6-lane, divided primary arterial that travels east-west through Anaheim, traversing primarily commercial and industrial land uses, with some residential near the east end near Main Street. Katella is located directly north and adjacent to the Transportation Center, and is the primary means of access to the facility.

Main Street: Main Street is a 4-lane arterial that traverses the eastern portion of the study area. Main is a north-south arterial, with surrounding land use comprised primarily of light industrial.

Orangewood Avenue: Orangewood is a 4-lane arterial, which runs east-west along the southern edge of Edison International Field. The land use surrounding the arterial is comprised primarily of light industrial west of the Santa Ana River and light commercial and residential to the east.

State College Boulevard: State College is a 6-lane, north-south arterial with surrounding land use comprised of light to moderate industrial. The arterial runs along the west end of Edison International Field.

G. SANTA ANA REGIONAL TRANSPORTATION CENTER

17th Street: 17th is a 6-lane, divided arterial, which runs east-west in the City of Santa Ana, north of the Regional Transportation Center. Surrounding land uses consist primarily of retail commercial and moderate density residential apartments.

Grand Avenue: Grand is a 4-lane, divided arterial, which runs north-south, east of Regional Transportation Center. The surrounding land use consists of primarily light commercial and industrial developments with some residential.

Main Street: Main is a 4-lane, undivided arterial, that runs north-south within Santa Ana. The surrounding land use consists primarily of higher-density retail and office commercial and residential developments.

Santa Ana Boulevard: Santa Ana Boulevard is a 6-lane, divided arterial between Grand Avenue and Santiago Avenue, 2-lanes between Santiago Avenue and 6th Street and a 3-lane arterial east of 6th Street. Surrounding land uses are comprised of primarily higher density residential and commercial developments.

H. IRVINE TRANSPORTATION CENTER

Alton Parkway: Generally, Alton is a 6-lane, divided east-west arterial that connects the Irvine Business Complex and Irvine Spectrum and Business Center to the residential communities in Central Irvine and Lake Forest. Land uses within the study area are primarily commercial and light industrial.

Barranca Parkway: Barranca is a 4-lane, divided east-west arterial that connects the business centers to the east and west of Irvine, with the residential communities in the Central Irvine. Land uses within the study area are primarily commercial and light industrial.

I. SAN JUAN CAPISTRANO AMTRAK AND METROLINK STATION

Camino Capistrano: Camino Capistrano is the primary north-south artery through San Juan Capistrano. It is a 3-lane, undivided arterial north of the mission, 2-lanes between the mission and Del Obispo, and a 4-lane, undivided arterial south of Del Obispo. Surrounding land uses are comprised primarily of retail commercial developments.

Del Obispo: Del Obispo travels east-west from Ortega Highway to just west of Alipaz Street, then heads north-south. Del Obispo is a 4-lane, undivided arterial when heading east-west, and a 2-lane arterial when heading north-south within the study area. Surrounding land uses are comprised of primarily residential west of Alipaz Street and retail commercial east of Alipaz.

Ortega Highway: Ortega is the primary highway connection between South Orange County and Riverside County. Within the study area, Ortega is a 4-lane, undivided highway with surrounding land uses comprised of light commercial and residential developments.

Rancho Viejo Road: Rancho Viejo is a north-south arterial, which travels along the eastern side of Interstate 5 through San Juan Capistrano. It is a 4-lane, divided arterial with surrounding land uses comprised of primarily residential with some light commercial.

J. OCEANSIDE TRANSPORTATION CENTER

Coast Highway 101 (County Route S21): Also known as San Diego County Route S21 (from San Diego north to the Orange County border), Coast Highway 101 is located slightly east of the existing Transportation Center and is a 4-lane, undivided arterial, and the primary north-south arterial within the City of Oceanside. Surrounding land use is comprised primarily of small retail and office commercial developments, with residential homes located directly behind the commercial developments.

Mission Avenue: Mission Avenue is a 4-lane, undivided arterial, which runs east-west, terminating near the Transportation Center. The surrounding land uses within the study area are comprised primarily of retail and small commercial office developments, with some open space and vacant lots existing near the rail corridor.

Oceanside Boulevard: Oceanside Boulevard is a 4-lane, undivided arterial, which runs east-west through the City of Oceanside. The surrounding land uses within the study area are comprised primarily of residential developments, with some retail commercial near the intersection with Coast Highway 101.

State Route 76: Route 76 is a 6-lane, divided state highway, which runs east-west, linking Interstate 5 to Interstate 15. Some commercial and residential development exists along the highway within the study area, but the land use is comprised primarily of vacant land. Since SR-76 is on the northern edge of the study area and terminates after merging with Coast Highway 101.

K. SOLANA BEACH AMTRAK AND COASTER STATION

Old Highway 101 (County Route S21): Old Highway 101 is located directly west and adjacent to the existing station and is a 4-lane, divided arterial. Coast Highway 101 the primary north-south arterial within the City of Solana Beach, with surrounding land uses comprised primarily of small retail commercial developments, and some residential developments.

Lomas Santa Fe Drive: Also known as San Diego County Route S8, Lomas Santa Fe Drive is a 4-lane, divided arterial that travels east-west through primarily residential and some light commercial land uses. Lomas Santa Fe Drive is located just south of the existing station and provides the primary connection for the City of Solana Beach from Old Highway 101 to I-5 and additional communities further east.

Via De La Valle: Also known as San Diego County Route S6, is an east-west, 4-lane, undivided arterial located at the southern-most portion of the study area. Via De La Valle starts at its western origin, where it connects to Old Highway 101 and travels through predominantly residential developments (to the north) and Del Mar Fairgrounds (to the south) as it approaches Interstate 5.

L. PROPOSED UNIVERSITY TOWNE CENTRE STATION

Genesee Avenue: The proposed station would be located directly under Genesee Avenue. Genesee is a 6-lane, divided arterial within the study area that travels primarily north-south. Surrounding land uses are comprised of high-density commercial office developments, retail establishments and moderate to high-density residential apartments.

La Jolla Village Drive: La Jolla Village Drive is a 6-lane, divided east-west arterial within the study area. The proposed station would be located below La Jolla Village Drive at the intersection with Genesee Avenue. La Jolla Village is a 6-lane, divided arterial and travels through high-density commercial office developments, high-density hotels, retail establishments and moderate density residential apartments. La Jolla Village Drive connects the coastal community of La Jolla and UCSD with the industrial developments along Miramar Road and Interstate 15 to the east.

Nobel Drive: Nobel is a 6-lane, divided local, but heavily traveled east-west arterial, which runs from Villa La Jolla Drive to Miramar Road. Surrounding land uses consist primarily of moderate to high-density residential developments, with some retail commercial located just west of Interstate 5 and east of Genesee.

Regents Road: Regents is another local north-south arterial, which is 4-lanes undivided south of Eastgate Drive and 2-lanes undivided north of Eastgate Drive. Surrounding land use is comprised of primarily moderate to high-density residential apartments and townhomes, with vacant land existing to the west, north of Eastgate Drive, within the property of the University of California San Diego (UCSD). Regents Road currently terminates at Rose Canyon.

M. SAN DIEGO SANTA FE DEPOT

1st Avenue: First is a 4-lane, undivided arterial located east of the Depot, and runs in a north-south direction through primarily high-density commercial office and retail developments, with some residential to the north of Interstate 5.

10th Avenue: Located east of the Depot, tenth is a 2-lane, southbound one-way arterial, which begins where the southbound lanes of State Route 163 terminate. Surrounding land uses are comprised primarily of higher density commercial and industrial developments within the study area.

11th Avenue: Located east of the Depot, eleventh is a 2-lane, northbound one-way arterial, which ends where the northbound lanes of State Route 163 begin. Surrounding land uses are comprised primarily of higher density commercial and industrial developments.

Ash Street: Located north of the Depot, Ash is a 3-lane, westbound one-way arterial which travels through primarily high-density commercial office and retail developments, with some industrial towards the east of the study area.

Broadway: Located directly south and adjacent to the Depot, Broadway is a 4-lane, divided arterial which runs in a east-west direction through primarily high-density commercial office and retail developments, with some industrial towards the east of the study area. Broadway is the primary east-west thoroughfare through downtown San Diego.

North Harbor Drive: Located to the west of the Depot, Harbor is a 4-lane, divided arterial, which runs in a north-south direction and is the primary access to the cruise ship terminals, harbor boats and provides a direct connection from downtown to the San Diego International Airport (Lindbergh Field). Surrounding land uses are dominated by high-density commercial and maritime developments.

Laurel Street: Located along the northern edge of the study area, Laurel is a 4-lane, undivided arterial which runs in a east-west direction through primarily moderate density commercial and industrial developments. Laurel is the primary access from Interstate 5 to Lindbergh Field.

Pacific Highway: Located directly west of the Depot, Pacific is a 6-lane, divided arterial, which runs in a north-south direction. Surrounding land uses are dominated by high-density commercial and developing residential developments.

2.2.3 Transportation Systems and Related Facilities

This section summarizes the existing public transportation network in the study area. It describes the services provided by regional and municipal public transportation providers spanning the three county area. Route and service information are provided for primary transit lines that serve rail stations and airport facilities in the Modal alternative that are within one mile of proposed rail stations. Ten public transit agencies provide transit services in the study area: Santa Monica Big Blue Bus, Los Angeles Department of Transportation (LADOT), Los Angeles County Metropolitan Transportation Authority (LACMTA), Culver City Bus, Torrance Transit, Norwalk Transit, Long Beach Transit, Orange County Transportation Authority (OCTA), North County Transit District (NCTD), San Diego Metropolitan Transit Development Board (MTDB), and San Diego Trolley Incorporated (SDTI).

A. LOS ANGELES INTERNATIONAL AIRPORT

A total of five transit agencies and 18 transit lines serve the proposed HST station area at Los Angeles International Airport (LAX). These agencies include the Los Angeles County Metropolitan Transportation Authority (LACMTA), Los Angeles Department of Transportation (LADOT), Santa Monica Big Blue Bus, Culver City Bus, and Torrance Transit.

B. LONG BEACH AIRPORT

Long Beach Transit (LBT) is the only transit agency that provides service to the Long Beach Airport. One route currently serves the Long Beach Airport and one route traverses the immediate area surrounding the airport.

C. NORWALK/SANTA FE SPRINGS TRANSPORTATION CENTER (METROLINK STATION [LOSSAN])

A total of two transit agencies and three transit lines serve the proposed HST LOSSAN station at the Norwalk/Santa Fe Springs Transportation Center. These agencies include the Los Angeles County Metropolitan Transportation Authority (LACMTA) and Norwalk Transit. LACMTA and Norwalk transit

also provide two additional routes that provide service to the immediate area surrounding the Norwalk/Santa Fe Springs Transportation Center. Metrolink also provides passenger rail service to the station.

D. PROPOSED NORWALK HIGH SPEED TRAIN STATION

A total of two transit agencies and five transit lines serve the proposed Norwalk HST station area along the Union Pacific Santa Ana Branch Line. These agencies primarily include the Los Angeles County Metropolitan Transportation Authority (LACMTA) and Norwalk Transit. LACMTA and Norwalk Transit also provide 4 additional routes that service the immediate area surrounding the proposed Norwalk HST station.

E. FULLERTON TRANSPORTATION CENTER

OCTA is the only transit agency that provides bus service to the proposed HST station at Fullerton Transportation Center. Five transit lines currently serve the region around the station. Metrolink and Amtrak also provide passenger rail service to the station. Two OCTA routes also traverse and provide service to areas adjacent to the Fullerton Transportation Center.

F. ANAHEIM TRANSPORTATION CENTER

OCTA is the only transit agency that provides bus service to the proposed HST station at Anaheim Transportation Center. Three transit lines currently provide service to the station. Metrolink and Amtrak also provide passenger rail service to the station. Three OCTA routes also provide service to areas surrounding the Anaheim Transportation Center.

G. SANTA ANA REGIONAL TRANSPORTATION CENTER

OCTA is the only transit agency that provides bus service to the proposed HST station at Santa Ana Regional Transportation Center. OCTA currently provides eight bus transit lines to serve the station. Metrolink provides 2 commuter rail routes and Amtrak also provides passenger rail service to the station. Two additional OCTA routes also provide service near the Santa Ana Regional Transportation Center.

H. IRVINE TRANSPORTATION CENTER

OCTA is the only transit agency that provides bus service to the proposed HST station at Irvine Transportation Center. Five transit lines currently serve the station. Metrolink and Amtrak also provide passenger rail service to the station. Five additional OCTA routes also provide service near the Irvine Transportation Center

I. SAN JUAN CAPISTRANO AMTRAK AND METROLINK STATION

There is currently one transportation agency providing service to the proposed HST station at the existing San Juan Capistrano Amtrak and Metrolink Station. The OCTA currently provides two bus transit lines to serve the station. Metrolink and Amtrak also provide passenger rail service to the station.

J. OCEANSIDE TRANSPORTATION CENTER

Currently, one transportation agency provides service to the proposed HST station at Oceanside Transportation Center. The NCTD provides a total of 16 bus transit routes to serve the area, in addition to the Coaster commuter service. Metrolink and Amtrak also provide passenger rail service to the station.

K. SOLANA BEACH AMTRAK AND COASTER STATION

One transit agency provides service to the proposed HST station at the existing Solana Beach Amtrak and Coaster Station. The NCTD provides two bus transit lines to serve the station, in addition to the Coaster commuter service. Amtrak also provides passenger rail service to the station. NCTD Breeze Route 310 provides service to areas near the Solana Beach Amtrak and Coaster Station.

L. PROPOSED UNIVERSITY TOWNE CENTRE STATION

Two transit agencies and 11 bus transit lines currently serve the proposed HST station at the existing University Towne Centre (UTC) Station. These agencies include the North San Diego County Transit Development Board (NCTD) and the San Diego Metropolitan Transit Development Board (MTDB).

M. SAN DIEGO SANTA FE DEPOT STATION

A total of three transportation agencies currently serve the station at the existing Santa Fe Depot Station. These agencies include the Coaster Commuter services, operated by the NCTD, the MTDB, and San Diego Trolley, Inc.

Table 2.2-1 lists all the current transit routes serving all existing and proposed rail stations and airport facilities with the end destinations of their services. Table 2.2-1 also lists services that do not provide direct service to the proposed stations, however serve areas immediately adjacent to or surrounding the project area.

Table 2.2-1
Existing Transit Services Serving Proposed High Speed Train Stations
Route and Service Characteristics: Destinations Served

Transit Operator	Route Number	Origin and Destinations
LAX HST STATION		
LACMTA	42	City Bus Center (LAX) - Patsouras Plaza (Los Angeles)
	111	City Bus Center (LAX) - Whittwood Mall (Whittier)
	115	Playa Del Rey - I-605/I-105 Metro Green Line Station (Norwalk)
	117	City Bus Center (LAX) - Rancho Los Amigos Medical Center (Downey)
	120	City Bus Center (LAX) - Norwalk/Santa Fe Springs Trans Center
	220	City Bus Center (LAX) - West Hollywood
	311	City Bus Center (LAX) - Whittwood Mall (Whittier) (Limited Stop Service)
	315	Playa Del Rey - I-605/I-105 Metro Green Line Station (Norwalk) (Limited Stop Service)
	439	Patsaouras Transit Plaza (Los Angeles) - Redondo Beach (Express Service)
	561	Lake Terrace - Aviation/I-105 Metro Green Line Station (LAX) (Limited Stop Service)

Transit Operator	Route Number	Origin and Destinations
	625	Westchester - City Bus Center (LAX)
	Lot "C" Shuttle	City Bus Center (LAX) - LAX
	Lot "G" Shuttle	Aviation/I-105 Metro Green Line Station (LAX) - LAX
LADOT	Commuter Express 574	Sylmar Metrolink Station - LAX
Santa Monica Big Blue Bus	3	UCLA - LAX
Culver CityBus	6	UCLA - Aviation/I-105 Metro Green Line Station (LAX)
Torrance Transit	8	
LONG BEACH AIRPORT		
Long Beach Transit	111	Downtown Long Beach - Lakewood Center Mall
LONG BEACH AIRPORT AREA		
Long Beach Transit	102	Santa Fe Ave. - Norwalk Blvd.
NORWALK (LOSSAN) HST STATION		
LACMTA	121	Imperial/Wilmington Roas Parks Metro Green/Blue Line Station - Norwalk/Santa Fe Springs Trans Center (Norwalk)
Norwalk Transit	3	Norwalk Square - Los Cerritos Mall
	4	I-605/I-105 Metro Green Line Station (Norwalk) - Imperial Hwy/Hoxie
NORWALK (LOSSAN) HST STATION AREA		
LACMTA	362	Hawaiian Gardens - L.A. CBD
Norwalk Transit	1	Rio Hondo College - Bellflower
NORWALK (UP) HST STATION		
LACMTA	121	Imperial/Wilmington Roas Parks Metro Green/Blue Line Station - Norwalk/Santa Fe Springs Trans Center (Norwalk)
	460	Disneyland - L.A. CBD
Norwalk Transit	2	
NORWALK (UP) HST STATION AREA		
LACMTA	125	El Segundo - I-605/I-105 Metro Green Line Station (Norwalk)
	362	Hawaiian Gardens - L.A. CBD
	460	Disneyland - L.A. CBD
Norwalk Transit	5	I-605/I-105 Metro Green Line Station - Adelfa & Santa Gertrudes
FULLERTON TRANSPORTATION CENTER STATION		
OCTA	26	Buena Park - Yorba Linda
	43	La Habra - Costa Mesa
	47	Brea - Newport Beach
	147	Brea - Santa Ana (Peak Only Service)
	213A	Brea - Irvine (Peak Only Service) (Express Service)
FULLERTON TRANSPORTATION CENTER STATION AREA		
OCTA	24	Fullerton - Orange
	30	Cerritos - Anaheim
ANAHEIM TRANSPORTATION CENTER HST STATION AREA		
OCTA	50	Long Beach - Orange

Transit Operator	Route Number	Origin and Destinations
	57	Brea - Newport Beach
	430	Anaheim Metrolink Station - Anaheim Resort Area (Peak Only Service) (Limited Stop Service)
ANAHEIM TRANSPORTATION CENTER STATION AREA		
OCTA	53	Brea - Irvine
	205	Anaheim - Laguna Hills (Express Service)
	757	Diamond Bar - Santa Ana (Peak Only Service) (Express Service)
SANTA ANA REGIONAL TRANSPORTATION CENTER STATION		
OCTA	59	Brea - Irvine
	62	Huntington Beach - Santa Ana
	205	Anaheim - Laguna Hills (Express Service)
	206	Santa Ana - Lake Forest (Peak Only Service) (Express Service)
	461	Santa Ana Regional Transportation Center - Irvine (Peak Only Service)
	462	Santa Ana Regional Transportation Center - Santa Ana Civic Center (Peak Only Service)
	463	Santa Ana Regional Transportation Center - Santa Ana (Peak Only Service)
	464	Santa Ana Regional Transportation Center - Costa Mesa (Peak Only Service)
SANTA ANA REGIONAL TRANSPORTATION CENTER STATION AREA		
OCTA	53	Brea - Irvine
	55	Santa Ana - Newport Beach
IRVINE TRANSPORTATION CENTER HST STATION		
OCTA	86	Costa Mesa - Mission Viejo
	188	Laguna Hills - Irvine
	211	Seal Beach - Irvine (Peak Only Service) (Express Service)
	480	Irvine Transportation Service - Lake Forest (Peak Only Service)
	482	Irvine Transportation Service - Irvine Center (Peak Only Service)
IRVINE TRANSPORTATION CENTER HST STATION AREA		
OCTA	70	Sunset Beach - Dana Point
	205	Anaheim - Laguna Hills (Express Service)
	206	Santa Ana - Lake Forest (Peak Only Service) (Express Service)
	212	Irvine - San Juan Capistrano (Peak Only Service) (Express Service)
	216	Costa Mesa - San Juan Capistrano (Peak Only Service) (Express Service)
SAN JUAN CAPISTRANO STATION		
OCTA	91	Laguna Hills - San Clemente
	191	Mission Viejo - San Clemente
OCEANSIDE TRANSPORTATION CENTER STATION		
NCTD	Breeze 101	Oceanside Transit Center - UTC
	Breeze 302	Oceanside Transit Center - Escondido Transit Center
	Breeze 303	Oceanside Transit Center - Vista Transit Center
	Breeze 310	Oceanside Transit Center - UTC (Express Service)
	Breeze 312	Community Circulator - West Oceanside

Transit Operator	Route Number	Origin and Destinations
	Breeze 313	Oceanside Transit Center - Town Center North
	Breeze 315	Oceanside Transit Center - 22 Area
	Breeze 316	Oceanside Transit Center - Francine Villas
	Breeze 318	Oceanside Transit Center - Vista Transit Center
	Breeze 320	Oceanside Transit Center - Escondido Transit Center (Express Service)
	Breeze 391	Community Circulator - Oceanside
	Breeze 392	Community Circulator - Oceanside
	Breeze 394	Oceanside Transit Center - Camp Del Mar
	Breeze 395	Oceanside Transit Center - San Clemente
	Breeze 397	Oceanside Transit Center - Fallbrook
	Breeze 415	Oceanside Transit Center - Oceanside Municipal Airport
	Coaster	Oceanside - San Diego
SOLANA BEACH STATION		
NCTD	Breeze 101	Oceanside Transit Center - UTC
	Breeze 308	Solana Beach Station - Escondido Transit Center
	Coaster	Oceanside - San Diego
SOLANA BEACH HST STATION AREA		
NCTD	Breeze 310	Oceanside Transit Center - UTC (Express Service)
UNIVERSITY TOWNE CENTRE STATION		
NCTD	Breeze 101	Oceanside Transit Center - UTC
	Breeze 310	Oceanside Transit Center - UTC (Express Service)
MTDB	5	UTC - College Grove
	30	Alliant International University - Downtown San Diego
	34	U.C.S.D. - Downtown San Diego
	41	Fashion Valley Transit Center - U.C.S.D.
	50	UTC - Downtown San Diego (Express Service)
	150	UTC - Downtown San Diego (Express Service)
	921	UTC - Mira Mesa
	931	Alliant International University - UTC
	960	UTC - Euclid Avenue Trolley Station (San Diego)
SAN DIEGO (SANTA FE DEPOT) STATION		
NCTD	Coaster	Oceanside - San Diego
SDTI	Blue Line	Qualcomm Stadium (Mission Valley) - San Ysidro/Tijuana
	Orange Line	San Diego Convention Center - Santee

Table 2.2-2 shows the service frequency (headways) for all bus lines serving the proposed or existing stations and adjacent areas that are within one mile of stations.

Table 2.2-2
Existing Transit Services Serving Proposed High Speed Train Stations
Route and Service Characteristics: Destinations Served

Operator	Route	Days	AM Peak 6-9 am	Midday 9am -3pm	PM Peak 3pm-6pm	Evening/Night after 6pm	Hours of Service
LAX HST STATION							
LACMTA	42	M-Th	20/27	20/30	20/30	30/60	5:11a - 12:08a
	42	Friday	20/27	20/30	20/30	30/60	5:11a - 12:08a
	42	Saturday	30	30	30/40	40/60	5:42a - 12:08a
	42	Sunday	60	60	60	60	6:43a - 12:08a
	111	M-Th	30	20/30	20	15/20/25/30/60	4:42a - 6:15a & 8:29a - 3:29p & 6:11p - 10:03p
	111	Friday	30	20/30	20	15/20/25/30/60	4:42a - 6:15a & 8:29a - 3:29p & 6:11p - 10:03p
	111	Saturday	45/50	60	60	30/50/60	4:41a - 10:03p
	111	Sunday	45/50/60	40/50	50/60	50/60	4:37a - 9:02p
	115	M-Th	No Svc	No Svc	1 Trip	No Svc	4:17p
	115	Friday	No Svc	No Svc	1 Trip	No Svc	4:17p
	115	Saturday	20/30	30/35	30/40	20/25/30/40/60	5:58a - 11:51p
	115	Sunday	30	20	20	25/30/35/40/60	5:58a - 11:51p
	117	M-Th	15/20	15/20	15/20	20/30/35/40	5:09a - 1:23a
	117	Friday	15/20	15/20	15/20	20/30/35/40	5:09a - 1:23a
	117	Saturday	20	15/20	15	15/30/35/40	5:17a - 1:23a
	117	Sunday	20/30	15/20	20	20/30/35/40	5:14a - 1:23a
	120	M-Th	15/20/25	20/25/30	15/20	30/40/'60	5:00a - 12:31a
	120	Friday	15/20/25	20/25/30	15/20	30/40/'60	5:00a - 12:31a
	120	Saturday	30/40	30	30	30/40/55/60	5:05a - 12:31a
	120	Sunday	25/45/60	30	30	50/60	5:50a - 12:31a
	220	M-Th	60	60	60	60	6:30a - 7:30p
	220	Friday	60	60	60	60	6:30a - 7:30p
	220	Saturday	60	60	60	60	7:30a - 7:30p
	220	Sunday	60	60	60	60	7:30a - 7:30p
	311	M-Th	25	23	25	11/12	5:24a - 9:40a & 2:54p - 7:02p
	311	Friday	25	23	25	11/12	5:24a - 9:40a & 2:54p - 7:02p
	311	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	311	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	315	M-Th	10/15	No Svc	10/15/20	1 Trip	6:05a - 8:47a & 3:58p - 6:03p
	315	Friday	10/15	No Svc	10/15/20	1 Trip	6:05a - 8:47a & 3:58p - 6:03p
	315	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	315	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	439	M-Th	35/40	40/45/50/60	30/35/40	30/40/55/60	5:06a - 12:15a

Operator	Route	Days	AM Peak 6-9 am	Midday 9am -3pm	PM Peak 3pm-6pm	Evening/Night after 6pm	Hours of Service
	439	Friday	35/40	40/45/50/60	30/35/40	30/40/55/60	5:06a - 12:15a
	439	Saturday	60	60	60	35/50/60	6:03a - 12:15a
	439	Sunday	60	60	60	35/60	6:04a - 12:15a
	561	M-Th	40/50/55	50	30/45/50	30/50/60/70	5:49a - 12:20a
	561	Friday	40/50/55	50	30/45/50	30/50/60/70	5:49a - 12:20a
	561	Saturday	2 Trips	60	60	30/60	8:03a - 12:20a
	561	Sunday	60	60	60	60	7:10a - 12:20a
	625	M-Th	18	15/20/30	18/22	18	5:08a - 7:50p
	625	Friday	18	15/20/30	18/22	18	5:08a - 7:50p
	625	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	625	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	Lot "C" Shuttle	M-Th	15	15	15	15	24 hours
	Lot "C" Shuttle	Friday	15	15	15	15	24 hours
	Lot "C" Shuttle	Saturday	15	15	15	15	24 hours
	Lot "C" Shuttle	Sunday	15	15	15	15	24 hours
	Lot "G" Shuttle	M-Th	15	15	15	15	24 hours
	Lot "G" Shuttle	Friday	15	15	15	15	24 hours
	Lot "G" Shuttle	Saturday	15	15	15	15	24 hours
	Lot "G" Shuttle	Sunday	15	15	15	15	24 hours
LADOT	Commuter Express 574	M-Th	30	No Svc	25/30	1 Trip	6:34a - 8:33a & 3:46p - 6:10p
	Commuter Express 574	Friday	30	No Svc	25/30	1 Trip	6:34a - 8:33a & 3:46p - 6:10p
	Commuter Express 574	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	Commuter Express 574	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
Santa Monica Big Blue Bus	3	M-Th	10/15	10	10	10/15/20/30	5:41a - 12:10p
	3	Friday	10/15	10	10	10/15/20/30	5:41a - 12:10p
	3	Saturday	15/20/30	20	20/25	30	6:00a - 12:10a
	3	Sunday	30	30	30	25/30	7:16a - 12:10a
Culver CityBus	6	M-Th	10/12	12/15	12/15	20/50/60	5:25a - 12:31a
	6	Friday	10/12	12/15	12/15	20/50/60	5:25a - 12:31a
	6	Saturday	20/30	20	20/30	30/60	5:56a - 11:37a
	6	Sunday	20/30	20	20/30	30/60	5:56a - 11:37a

Operator	Route	Days	AM Peak 6-9 am	Midday 9am -3pm	PM Peak 3pm-6pm	Evening/Night after 6pm	Hours of Service
Torrance Transit	8	M-Th	20	25/30	20	30/65	6:00a - 10:30p
	8	Friday	20	25/30	20	30/65	6:00a - 10:30p
	8	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	8	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
LONG BEACH AIRPORT							
LBT	111	M-Th	25/30/35	30	30	30/40/60	5:44a - 1:00a
	111	Friday	25/30/35	30	30	30/40/60	5:44a - 1:00a
	111	Saturday	50/60	60	60	60	6:15a - 11:26p
	111	Sunday	50/60	60	60	60	6:15a - 11:26p
LONG BEACH AIRPORT AREA							
LBT	102	M-Th	30	30	30	30/90	5:41a - 9:19p
	102	Friday	30	30	30	30/90	5:41a - 9:19p
	102	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	102	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
NORWALK (LOSSAN) STATION							
LACMTA	121	M-Th	15/20/30	15/20/25/30	20	25/30/60	4:40a - 11:29p
	121	Friday	15/20/30	15/20/25/30	20	25/30/60	4:40a - 11:29p
	121	Saturday	40/50	60	40/45	40/45/60	5:15a - 11:29p
	121	Sunday	60	60/65	60	35/60	6:20a - 11:29p
Norwalk Transit	3	M-Th	60	60	60	60	5:31a - 7:31p
	3	Friday	60	60	60	60	5:31a - 7:31p
	3	Saturday	1 Trip	120	120	No Svc	8:19a - 5:31p
	3	Sunday	1 Trip	120	120	No Svc	8:19a - 5:31p
	4	M-Th	40	40	40	40	6:05a - 6:50p
	4	Friday	40	40	40	40	6:05a - 6:50p
	4	Saturday	20/25	25/35	20/25	20/25/35	5:15a - 9:44p
	4	Sunday	20/25	25/35	20/25	20/25/35	5:15a - 9:44p
NORWALK (LOSSAN) STATION AREA							
LACMTA	362	M-Th	15/20/30	30/60	30	30/60	4:54a - 11:16p
	362	Friday	15/20/30	30/60	30	30/60	4:54a - 11:16p
	362	Saturday	48/54/60	60	60	60	4:54a - 11:18p
	362	Sunday	48/54/60	60	60	60	4:54a - 11:18p
Norwalk Transit	1	M-Th	28	28	28	28	5:29a - 11:20p
	1	Friday	28	28	28	28	5:29a - 11:20p
	1	Saturday	60	60	60	No Svc	8:50a - 5:05p
	1	Sunday	60	60	60	No Svc	8:50a - 5:05p

Operator	Route	Days	AM Peak 6-9 am	Midday 9am -3pm	PM Peak 3pm-6pm	Evening/Night after 6pm	Hours of Service
NORWALK (UP) STATION							
LACMTA	121	M-Th	15/20/30	15/20/25/30	20	25/30/60	4:40a - 11:29p
	121	Friday	15/20/30	15/20/25/30	20	25/30/60	4:40a - 11:29p
	121	Saturday	40/50	60	40/45	40/45/60	5:15a - 11:29p
	121	Sunday	60	60/65	60	35/60	6:20a - 11:29p
	460	M-Th	20/25/30	25/30	25/30	30/60	5:26a - 12:56a
	460	Friday	20/25/30	25/30	25/30	30/60	5:26a - 12:56a
	460	Saturday	30/35	30	30	30/55	5:41a - 12:56a
	460	Sunday	30/35/45	30	30	30/55	5:41a - 12:56a
Norwalk Transit	2	M-Th	30	30	30	30	6:05a - 7:15p
	2	Friday	30	30	30	30	6:05a - 7:15p
	2	Saturday	No Svc	60	60	No Svc	10:05a - 5:15p
	2	Sunday	No Svc	60	60	No Svc	10:05a - 5:15p
NORWALK (UP) STATION AREA							
LACMTA	125	M-Th	20	30	15/20/30	20/25/60	4:39a - 9:39p
	125	Friday	20	30	15/20/30	20/25/60	4:39a - 9:39p
	125	Saturday	25/35	25	25/30	30/40	5:24a - 9:29p
	125	Sunday	30/40	30	30	30/55	6:20a - 9:29p
LACMTA	362	M-Th	15/20/30	30/60	30	30/60	4:54a - 11:16p
	362	Friday	15/20/30	30/60	30	30/60	4:54a - 11:16p
	362	Saturday	48/54/60	60	60	60	4:54a - 11:18p
	362	Sunday	48/54/60	60	60	60	4:54a - 11:18p
LACMTA	460	M-Th	20/25/30	25/30	25/30	30/60	4:36a - 1:40a
	460	Friday	20/25/30	25/30	25/30	30/60	4:36a - 1:40a
	460	Saturday	30/40	30	30	30/55	4:58a - 1:40a
	460	Sunday	30/45	30	30	30/55	4:58a - 1:40a
Norwalk Transit	5	M-Th	20/40/45/50	60	30/60	35/50	4:14a - 9:59p
	5	Friday	20/40/45/50	60	30/60	35/50	4:14a - 9:59p
	5	Saturday	25/30/35/40	27/32/50	50/56/60	30	5:02a - 9:52p
	5	Sunday	60	60	60	60	6:27a - 8:53p
FULLERTON HST STATION							
OCTA	26	M-Th	30	30	30	60/70	6:11a - 10:17p
	26	Friday	30	30	30	60/70	6:11a - 10:17p
	26	Saturday	50	50	50	1 Trip	7:59a - 6:16p
	26	Sunday	50	50	50	1 Trip	7:59a - 6:16p
	43	M-Th	10/15	15	10/15	8/15/25/30/60	3:57a - 4:33x
	43	Friday	10/15	15	10/15	8/15/25/30/60	3:57a - 4:33x
	43	Saturday	20	15/20	15	15/20/25/30/40/50/60	4:47a - 4:33a

Operator	Route	Days	AM Peak 6-9 am	Midday 9am -3pm	PM Peak 3pm-6pm	Evening/Night after 6pm	Hours of Service
	43	Sunday	30	15	15	15/25/30/45/60	4:47a - 4:33a
	47	M-Th	15/30	15/20/25	15	10/15/30/45/60	4:36a - 11:21p
	47	Friday	15/30	15/20/25	15	10/15/30/45/60	4:36a - 11:21p
	47	Saturday	17/30	20/30	20/30	30/40/60	4:51a - 10:57p
	47	Sunday	17/30	20/30	20/30	30/40/60	4:51a - 10:57p
	147	M-Th	3 Trips	No Svc	2 Trips	2 Trips	Peak Only 6:40a - 7:16a & 4:21p - 6:14p
	147	Friday	3 Trips	No Svc	2 Trips	2 Trips	Peak Only 6:40a - 7:16a & 4:21p - 6:14p
	147	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	147	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	213A	M-Th	3 Trips	No Svc	3 Trips	1 Trip	Peak Only 5:39a - 6:37a & 5:20p - 6:20p
	213A	Friday	3 Trips	No Svc	3 Trips	1 Trip	Peak Only 5:39a - 6:37a & 5:20p - 6:20p
	213A	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	213A	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
FULLERTON HST STATION AREA							
OCTA	24	M-Th	30	60	30	60	5:00a - 10:55p
	24	Friday	30	60	30	60	5:00a - 10:55p
	24	Saturday	60	60	60	60	7:01a - 844p
	24	Sunday	60	60	60	60	7:01a - 844p
	30	M-Th	30	30	30	60	4:14a - 10:48p
	30	Friday	30	30	30	60	4:14a - 10:48p
	30	Saturday	60	60	60	60	6:22a - 8:54p
	30	Sunday	No Svc	60	60	No Svc	8:45a - 6:26p
ANAHEIM HST STATION							
OCTA	50	M-Th	20	30	20	20/30/35/60	5:06a - 4:16a
	50	Friday	20	30	20	20/30/35/60	5:06a - 4:16a
	50	Saturday	45/60	30	30	45/60	4:42a - 4:16a
	50	Sunday	45	45	45	45/60	4:42a - 4:16a
	57	M-Th	8/14/20	10/15	8/12	15/20/30/60	4:09a - 4:23x
	57	Friday	8/14/20	10/15	8/12	15/20/30/60	4:09a - 4:23x
	57	Saturday	20	12/20	12	12/20/30//60	5:03a - 4:23a
	57	Sunday	20/30	12/20	12	12/20/30//60	5:03a - 4:23a
	430	M-Th	6 Trips	No Svc	4 Trips	1 Trip	Peak Only 6:31a - 8:45a & 4:02p - 6:15p
	430	Friday	6 Trips	No Svc	4 Trips	1 Trip	Peak Only 6:31a - 8:45a & 4:02p - 6:15p

Operator	Route	Days	AM Peak 6-9 am	Midday 9am -3pm	PM Peak 3pm-6pm	Evening/Night after 6pm	Hours of Service
	430	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	430	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
ANAHEIM HST STATION AREA							
OCTA	53	M-Th	12	12	12	12	4:09a - 12:24a
	53	Friday	12	12	12	12	4:09a - 12:24a
	53	Saturday	20	12	12	20/30	6:09a - 9:43p
	53	Sunday	20	15	15	20/30	5:47a - 9:56p
	205	M-Th	15/30	30	10	12/30/60	4:50a - 12:09a
	205	Friday	15/30	30	10	12/30/60	4:50a - 12:09a
	205	Saturday	12/30/40	30	30	30/60	5:53a - 10:55p
	205	Sunday	60	60	30/60	60	5:30a - 11:08p
	757	M-Th	2 Trips	No Svc	2 Trips	No Svc	Peak Only 6:27a - 7:58a & 4:39p - 6:14p
	757	Friday	2 Trips	No Svc	2 Trips	No Svc	Peak Only 6:27a - 7:58a & 4:39p - 6:14p
	757	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	757	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
SANTA ANA HST STATION							
OCTA	59	M-Th	5/15/20	20/30	5/15/20	45/60	5:10a - 11:00p
	59	Friday	5/15/20	20/30	5/15/20	45/60	5:10a - 11:00p
	59	Saturday	No Svc	60	60	60	9:07a - 11:12p
	59	Sunday	No Svc	60	60	60	9:05a - 10:08p
	62	M-Th	20	20	20	20/30/60	5:49a - 8:43p
	62	Friday	20	20	20	20/30/60	5:49a - 8:43p
	62	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	62	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	205	M-Th	15	20/30/35	5/10/15	15/20/60	5:00a - 11:38p
	205	Friday	15	20/30/35	5/10/15	15/20/60	5:00a - 11:38p
	205	Saturday	30/40	30	30	30/60	5:59a - 10:55p
	205	Sunday	55/60	30/60	30	60	5:59a - 10:55p
	206	M-Th	1 Trip	No Svc	2 Trips	No Svc	Peak Only 5:31a - 6:01a & 4:34p - 5:04p
	206	Friday	1 Trip	No Svc	2 Trips	No Svc	Peak Only 5:31a - 6:01a & 4:34p - 5:04p
	206	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	206	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	461	M-Th	8 Trips	No Svc	5 Trips	2 Trips	Peak Only 6:11a - 8:54a & 4:19p - 6:45p
	461	Friday	8 Trips	No Svc	5 Trips	2 Trips	Peak Only 6:11a - 8:54a & 4:19p - 6:45p
	461	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc

Operator	Route	Days	AM Peak 6-9 am	Midday 9am -3pm	PM Peak 3pm-6pm	Evening/Night after 6pm	Hours of Service
	461	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	462	M-Th	9 Trips	No Svc	6 Trips	2 Trips	Peak Only 6:11a - 8:54a & 3:54p - 6:42p
	462	Friday	9 Trips	No Svc	6 Trips	2 Trips	Peak Only 6:11a - 8:54a & 3:54p - 6:42p
	462	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	462	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	463	M-Th	8 Trips	No Svc	7 Trips	2 Trips	Peak Only 6:11a - 8:54a & 4:12p - 6:45p
	463	Friday	8 Trips	No Svc	7 Trips	2 Trips	Peak Only 6:11a - 8:54a & 4:12p - 6:45p
	463	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	463	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	464	M-Th	9 Trips	No Svc	5 Trips	2 Trips	Peak Only 6:11a - 8:54a & 4:12p - 6:45p
	464	Friday	9 Trips	No Svc	5 Trips	2 Trips	Peak Only 6:11a - 8:54a & 4:12p - 6:45p
	464	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	464	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
SANTA ANA HST STATION AREA							
OCTA	53	M-Th	12	12	12	12	4:09a - 12:24a
	53	Friday	12	12	12	12	4:09a - 12:24a
	53	Saturday	20	12	12	20/30	6:09a - 9:43p
	53	Sunday	20	15	15	20/30	5:47a - 9:56p
	55	M-Th	20	20	15/20	15/20/30	4:22a - 11:41p
	55	Friday	20	20	15/20	15/20/30	4:22a - 11:41p
	55	Saturday	30	20/30	20	20/30	4:56a - 10:53p
	55	Sunday	30	20	20	20/30	4:56a - 10:23p
IRVINE HST STATION							
OCTA	86	M-Th	55	55	55	55	6:25a - 8:18p
	86	Friday	55	55	55	55	6:25a - 8:18p
	86	Saturday	50	50	50	1 Trip	7:46a - 6:16p
	86	Sunday	No Svc	No Svc	No Svc	No Svc	No Service
	188	M-Th	45/55	No Svc	45	45/60	Peak Only 5:53a - 8:58a & 3:17p - 7:07p
	188	Friday	45/55	No Svc	45	45/60	Peak Only 5:53a - 8:58a & 3:17p - 7:07p
	188	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	188	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc

Operator	Route	Days	AM Peak 6-9 am	Midday 9am -3pm	PM Peak 3pm-6pm	Evening/Night after 6pm	Hours of Service
	211	M-Th	30/40	No Svc	26/30	No Svc	Peak Only 6:42a - 7:55a & 4:19p - 5:45p
	211	Friday	30/40	No Svc	26/30	No Svc	Peak Only 6:42a - 7:55a & 4:19p - 5:45p
	211	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	211	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	480	M-Th	7 Trips	1 Trip	4 Trips	1 Trip	Peak Only 6:24a - 9:07a & 3:57p - 6:27p
	480	Friday	7 Trips	1 Trip	4 Trips	1 Trip	Peak Only 6:24a - 9:07a & 3:57p - 6:27p
	480	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	480	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	482	M-Th	7 Trips	1 Trip	6 Trips	2 Trips	Peak Only 6:09a - 9:07a & 3:57p - 6:34p
	482	Friday	7 Trips	1 Trip	6 Trips	2 Trips	Peak Only 6:09a - 9:07a & 3:57p - 6:34p
	482	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	482	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
IRVINE HST STATION AREA							
OCTA	70	M-Th	15	20	15	15/30/40/60	4:22a - 12:11a
	70	Friday	15	20	15	15/30/40/60	4:22a - 12:11a
	70	Saturday	20	20	20	20/25/30/60	4:48a - 11:05p
	70	Sunday	30	20	20	20	6:18a - 9:24p
	205	M-Th	15/30	30	10	12/30/60	4:50a - 12:09a
	205	Friday	15/30	30	10	12/30/60	4:50a - 12:09a
	205	Saturday	12/30/40	30	30	30/60	5:53a - 10:55p
	205	Sunday	60	60	30/60	60	5:30a - 11:08p
	206	M-Th	30	No Svc	30	1 Trip	Peak Only 5:31a - 7:11a & 3:20p - 5:04p
	206	Friday	30	No Svc	30	1 Trip	Peak Only 5:31a - 7:11a & 3:20p - 5:04p
	206	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	206	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	212	M-Th	35	No Svc	74	No Svc	Peak Only 5:51a - 7:30a & 4:00p - 6:27p
	212	Friday	35	No Svc	74	No Svc	Peak Only 5:51a - 7:30a & 4:00p - 6:27p
	212	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	212	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc

Operator	Route	Days	AM Peak 6-9 am	Midday 9am -3pm	PM Peak 3pm-6pm	Evening/Night after 6pm	Hours of Service
	216	M-Th	3 Trips	No Svc	2 Trips	No Svc	Peak Only 6:01a - 8:05a & 4:05p - 5:45p
	216	Friday	3 Trips	No Svc	2 Trips	No Svc	Peak Only 6:01a - 8:05a & 4:05p - 5:45p
	216	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	212	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
SAN JUAN HST CAPISTRANO STATION							
OCTA	91	M-Th	25/30	30	30	30/35/60	5:17a - 10:37p
	91	Friday	25/30	30	30	30/35/60	5:17a - 10:37p
	91	Saturday	45/60	45	45/60	74	7:14a - 7:49p
	91	Sunday	45/60	45	45/60	58/74	7:14a - 7:49p
	191	M-Th	26/30	30/40/60	30	30/40/60	5:41a - 9:13p
	191	Friday	26/30	30/40/60	30	30/40/60	5:41a - 9:13p
	191	Saturday	60	60	60	60	6:40a - 7:14p
	191	Sunday	60	60	60	60	6:40a - 7:14p
OCEANSIDE HST STATION							
NCTD	Breeze 101	M-Th	30	30	30	30	5:00a - 11:25p
	Breeze 101	Friday	30	30	30	30	5:00a - 11:25p
	Breeze 101	Saturday	30	30	30	30	5:00a - 11:25p
	Breeze 101	Sunday	30	30	30	30	5:00a - 11:25p
	Breeze 302	M-Th	15	15	15	30	5:00a - 11:39p
	Breeze 302	Friday	15	15	15	30	5:00a - 11:39p
	Breeze 302	Saturday	30	30	30	30/60	5:00a - 10:39p
	Breeze 302	Sunday	30	30	30	30/60	5:00a - 10:39p
	Breeze 303	M-Th	15/30	30	30	30/60	4:00a - 10:51p
	Breeze 303	Friday	15/30	30	30	30/60	4:00a - 10:51p
	Breeze 303	Saturday	30	30	30	30/60	6:00a - 10:51p
	Breeze 303	Sunday	30	30	30	30/60	6:00a - 10:51p
	Breeze 310	M-Th	60/90	90	1 Trip	60	6:00a - 7:48p
	Breeze 310	Friday	60/90	90	1 Trip	60	6:00a - 7:48p
	Breeze 310	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	Breeze 310	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	Breeze 312	M-Th	76	75	75	1 Trip	5:15a - 6:41p
	Breeze 312	Friday	76	75	75	1 Trip	5:15a - 6:41p
	Breeze 312	Saturday	1 Trip	75	75	1 Trip	8:06a - 6:41p
	Breeze 312	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	Breeze 313	M-Th	60	60	60	60	6:00a - 8:46p
	Breeze 313	Friday	60	60	60	60	6:00a - 8:46p
	Breeze 313	Saturday	60	60	60	60	8:00a - 7:46p
	Breeze 313	Sunday	60	60	60	No Svc	8:00a - 4:46p
	Breeze 315	M-Th	60	60	60	60/120	4:30a - 1:11a
	Breeze 315	Friday	60	60	60	60/120	4:30a - 1:11a

Operator	Route	Days	AM Peak 6-9 am	Midday 9am -3pm	PM Peak 3pm-6pm	Evening/Night after 6pm	Hours of Service
	Breeze 315	Saturday	60	60	60	60/120	4:30a - 1:11a
	Breeze 315	Sunday	60	60	60	60	5:30a - 11:11p
	Breeze 316	M-Th	120	120	120	1 Trip	7:00a - 7:21p
	Breeze 316	Friday	120	120	120	1 Trip	7:00a - 7:21p
	Breeze 316	Saturday	120	120	120	1 Trip	7:00a - 7:21p
	Breeze 316	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	Breeze 318	M-Th	30	30	30	60	5:30a - 9:25p
	Breeze 318	Friday	30	30	30	60	5:30a - 9:25p
	Breeze 318	Saturday	60	60	60	60	6:00a - 8:25p
	Breeze 318	Sunday	1 Trip	90	90	1 Trip	8:00a - 7:55p
	Breeze 320	M-Th	30	30	30	30	5:00a - 9:27p
	Breeze 320	Friday	30	30	30	30	5:00a - 9:27p
	Breeze 320	Saturday	30	30	30	30	5:00a - 9:27p
	Breeze 320	Sunday	30	30	30	60	8:00a - 7:57p
	Breeze 391	M-Th	120	120	120	1 Trip	6:00a - 6:36p
	Breeze 391	Friday	120	120	120	1 Trip	6:00a - 6:36p
	Breeze 391	Saturday	1 Trip	120	120	1 Trip	8:00a - 6:36p
	Breeze 391	Sunday	No Svc	120	120	No Svc	No Svc
	Breeze 392	M-Th	48/72	48/72	48/72	No Svc	7:00a - 5:48p
	Breeze 392	Friday	48/72	48/72	48/72	No Svc	7:00a - 5:48p
	Breeze 392	Saturday	No Svc	48/72	48/72	No Svc	9:00a - 5:48p
	Breeze 392	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	Breeze 394	M-Th	1 Trip	120	120	120	7:30a - 9:55p
	Breeze 394	Friday	1 Trip	120	60	60	7:30a - 12:55a
	Breeze 394	Saturday	1 Trip	60	60	60	7:30a - 12:55a
	Breeze 394	Sunday	60	30/60	30	30	7:00a - 11:55a
	Breeze 395	M-Th	120	120	120	120	4:00a - 11:55p
	Breeze 395	Friday	120	60/120	60	60	4:00a - 12:32a
	Breeze 395	Saturday	120	60/120	60	60	4:00a - 1:40a
	Breeze 395	Sunday	60/120	30/60	30/60	60/120	4:00a - 11:55p
	Breeze 397	M-Th	120	120	120	120	5:30a - 9:18p
	Breeze 397	Friday	120	120	120	120	5:30a - 9:18p
	Breeze 397	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	Breeze 397	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	Breeze 415	M-Th	1 Trip	No Svc	1 Trip	No Svc	6:30a & 4:00p
	Breeze 415	Friday	1 Trip	No Svc	1 Trip	No Svc	6:30a & 4:00p
	Breeze 415	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	Breeze 415	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	Coaster	M-Th	25/35/80	120/170	30/40/80	40	5:23a - 7:42p
	Coaster	Friday	25/35/80	120/170	30/40/80	40	5:23a - 7:42p
	Coaster	Saturday	No Svc	140	140	1 Trip	9:35a - 7:42p
	Coaster	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc

Operator	Route	Days	AM Peak 6-9 am	Midday 9am -3pm	PM Peak 3pm-6pm	Evening/Night after 6pm	Hours of Service
SOLANA HST BEACH STATION							
NCTD	Breeze 101	M-Th	30	30	30	30	5:55a - 10:55p
	Breeze 101	Friday	30	30	30	30	5:55a - 10:55p
	Breeze 101	Saturday	30	30	30	30	5:55a - 10:55p
	Breeze 101	Sunday	30	30	30	30	5:55a - 10:55p
	Breeze 308	M-Th	30/45	45/60	30/45	25/30/60	5:10a - 8:10p
	Breeze 308	Friday	30/45	45/60	30/45	25/30/60	5:10a - 8:10p
	Breeze 308	Saturday	60	60	60	60	6:16a - 7:34p
	Breeze 308	Sunday	60	60	60	60	6:16a - 7:34p
	Coaster	M-Th	25/35/70	90/120/180	30/40/80	40	5:45a - 7:18p
	Coaster	Friday	25/35/70	90/120/180	30/40/80	40	5:45a - 7:18p
	Coaster	Saturday	No Svc	140	140	1 Trip	9:57a - 7:18p
	Coaster	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
SOLANA HST BEACH STATION AREA							
NCTD	Breeze 310	M-Th	60/90	1 Trip	90	1 Trip	6:00a - 7:48p
	Breeze 310	Friday	60/90	1 Trip	90	1 Trip	6:00a - 7:48p
	Breeze 310	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	Breeze 310	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
UNIVERSITY TOWNE CENTRE HST STATION							
NCTD	Breeze 101	M-Th	30	30	30	30	5:30a - 11:28p
	Breeze 101	Friday	30	30	30	30	5:30a - 11:28p
	Breeze 101	Saturday	30	30	30	30	5:55a - 11:30p
	Breeze 101	Sunday	30	30	30	30	5:55a - 11:30p
	Breeze 310	M-Th	60	1 Trip	90	1 Trip	7:10a - 6:30p
	Breeze 310	Friday	60	1 Trip	90	1 Trip	7:10a - 6:30p
	Breeze 310	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	Breeze 310	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
MTDB	5	M-Th	30/60	15/45/55/60	25/37/42	20/30/60	5:27a - 11:38p
	5	Friday	30/60	15/45/55/60	25/37/42	20/30/60	5:27a - 11:38p
	5	Saturday	35/60	20/35/40	20/40	15/25/30/35/40/60	5:53a - 9:32p
	5	Sunday	35/60	20/35/40	20/40	15/25/30/35/40/60	5:53a - 9:32p
	30	M-Th	15/20/25/30	10/15/20/25/30	15/30	7/20/30/50/60	5:30a - 8:43p
	30	Friday	15/20/25/30	10/15/20/25/30	15/30	7/20/30/50/60	5:30a - 8:43p
	30	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	30	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	34	M-Th	15/30/40	30	30	30	5:57a - 1:15a
	34	Friday	15/30/40	30	30	30	5:57a - 1:15a
	34	Saturday	15/30/40	30	30	30	5:57a - 1:15a
	34	Sunday	15/30/40	30	30	30	5:57a - 1:15a
	41	M-Th	15/20	15/20/30	15/30	15/25/30/60	5:53a - 11:03p
	41	Friday	15/20	15/20/30	15/30	15/25/30/60	5:53a - 11:03p
	41	Saturday	30/60	30	30	30/60/70	6:25a - 9:46p

Operator	Route	Days	AM Peak 6-9 am	Midday 9am -3pm	PM Peak 3pm-6pm	Evening/Night after 6pm	Hours of Service
	41	Sunday	30/60	30	30	30/60/70	6:25a - 9:46p
	50	M-Th	20/25/30/35/45	30	30	1 Trip	5:38a - 6:50p
	50	Friday	20/25/30/35/45	30	30	1 Trip	5:38a - 6:50p
	50	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	50	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	150	M-Th	20/30	30	30/35/40	1 Trip	5:43a - 9:30a & 2:38p - 6:29p
	150	Friday	20/30	30	30/35/40	1 Trip	5:43a - 9:30a & 2:38p - 6:29p
	150	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	150	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	921	M-Th	30/45	30	30	30	6:00a - 10:36a & 1:52p - 6:50p
	921	Friday	30/45	30	30	30	6:00a - 10:36a & 1:52p - 6:50p
	921	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	921	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
	931	M-Th	No Svc	No Svc	No Svc	No Svc	No Svc
	931	Friday	No Svc	No Svc	No Svc	No Svc	No Svc
	931	Saturday	45	45	45	45	6:50a - 9:20p
	931	Sunday	No Svc	45	45	45	9:52a - 7:45p
	960	M-Th	15/30/50	No Svc	30	No Svc	6:03a - 5:50p
	960	Friday	15/30/50	No Svc	30	No Svc	6:03a - 5:50p
	960	Saturday	No Svc	No Svc	No Svc	No Svc	No Svc
	960	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
SAN DIEGO (SANTA FE DEPOT) HST STATION							
MTDB	21 Local & Express Bus Routes						
NCTD	Coaster	M-Th	15/30/40/72	90/120/180	30/40/80	40	6:21a - 6:45p
	Coaster	Friday	15/30/40/72	90/120/180	30/40/80	40	6:21a - 6:45p
	Coaster	Saturday	No Svc	140	2 Trips	2 Trips	10:35a - 6:45p
	Coaster	Sunday	No Svc	No Svc	No Svc	No Svc	No Svc
SDTI	Blue Line	M-Th	15	15	15	15/30	4:59a - 12:12a
	Blue Line	Friday	15	15	15	15/30	4:59a - 12:12a
	Blue Line	Saturday	15	15	15	15/30	5:11a - 3:11a
	Blue Line	Sunday	30	15/30	15	15/30	4:11a - 12:12a
SDTI	Orange Line	M-Th	15	15	15	15/30	4:54a - 1:31a
	Orange Line	Friday	15	15	15	15/30	4:54a - 1:31a
	Orange Line	Saturday	30	15/30	15	15/30/60	5:24a - 2:01a
	Orange Line	Sunday	30	15/30	15	15/30	5:24a - 12:01a

2.3 SCREENLINES AND CORDONS COMBINING SEGMENTS OF THE PRIMARY ROUTES

Screenlines and cordons are used to identify and compare intercity highway and local station arterial volumes between the Existing, No-Project, Modal, and High Speed Train Alternatives. The screenline locations are selected based on logical points along the highway and where the traffic data is available, these points include segments between major interchanges or known high congestion locations. Cordons within one-mile radius are used around the station locations to assist in calculating volume to capacity ratios and the distribution of trips generated by the establishment of a High Speed Train station or related facility. The following figures (Figure 2.3-1 through 2.3-14) display the location of the screenlines and cordons along the corridor and at the station locations.

Figure 2.3-1 Los Angeles to San Diego via Orange County Selected Screenlines

Figure 2.3-2 High Speed Train Station Study Area – Los Angeles International Airport

Figure 2.3-3 Modal Alternative Airport Study Area – Long Beach Airport

Figure 2.3-4 High Speed Train Station Study Area – Norwalk (LOSSAN)

Figure 2.3-5 High Speed Train Station Study Area – Norwalk (U.P.)

Figure 2.3-6 High Speed Train Station Study Area - Fullerton

Figure 2.3-7 High Speed Train Station Study Area - Anaheim

Figure 2.3-8 High Speed Train Station Study Area – Santa Ana

Figure 2.3-9 High Speed Train Station Study Area - Irvine

Figure 2.3-10 High Speed Train Station Study Area – San Juan Capistrano

Figure 2.3-11 High Speed Train Station Study Area – San Clemente

Figure 2.3-12 High Speed Train Station Study Area - Oceanside

Figure 2.3-13 High Speed Train Station Study Area – Solana Beach

Figure 2.3-14 High Speed Train Station Study Area – University Towne Centre

Figure 2.3-15 High Speed Train Station Study Area – Santa Fe Depot

2.4 EXISTING RATIOS OF DEMAND TO CAPACITY ACROSS SCREENLINES AND CORDONS

Volume to Capacity (V/C) ratios are the demand volumes, divided by the built capacities of a given transportation facility. V/C ratios can serve to provide a general indication as to the level of service (LOS) a facility is currently operating at. Level of Service, as described by the Highway Capacity Manual (HCM), represents "a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience". Volume to Capacity Ratios were calculated at selected screenlines and station area cordons from LAX and Los Angeles to San Diego. The existing V/C ratios were calculated based on volumes and capacity data provided by the Regional Metropolitan Planning Organizations (MPO) and the California Department of Transportation (Caltrans) across each selected screenline and station area cordon, and are shown below in Tables 2.4-1 and 2.4-2. Existing numbers received from the Southern California Association of Governments (SCAG) represents 1997 traffic volumes.

Table 2.4-1
Existing V/C Ratios at Selected Screenlines

Union Station to LAX		
Route	**Screenline**	**Volume / Capacity**
Interstate 105	Inglewood Ave	1.18
Interstate 110	Exposition Blvd	1.22
Union Station to Fullerton		
Route	**Screenline**	**Volume / Capacity**
Interstate 5	Lakewood Blvd	1.05
Interstate 5	Artesia Blvd	1.04
Fullerton to Irvine		
Route	**Screenline**	**Volume / Capacity**
Interstate 5	State Route 55	0.96
Irvine to San Juan Capistrano		
Route	**Screenline**	**Volume / Capacity**
Interstate 5	Alicia Pkwy	1.01
San Juan Capistrano to Oceanside		
Route	**Screenline**	**Volume / Capacity**
Interstate 5	Camino Estrella	1.35
Oceanside to University Towne Centre		
Route	**Screenline**	**Volume / Capacity**
Interstate 5	Tamarack Ave	1.07
Interstate 5	Via De La Valle	1.08
University Towne Centre to Santa Fe Depot		
Route	**Screenline**	**Volume / Capacity**
Interstate 5	Balboa Ave	1.05

Table 2.4-2
Existing V/C Ratios at Selected Station Cordons

Station	Route	Cordon	Volume / Capacity
Union Station to LAX			
LAX Terminal	Century Boulevard	Between Aviation & Bellanca	0.32
	La Tijera Boulevard	Between Manchester & Sepulveda	0.64
	Lincoln Boulevard	Between Westchester & Sepulveda	0.47
	Sepulveda Boulevard	Between Lincoln & 96th Street	0.79
	Westchester Parkway	Between Lincoln & La Tijera	0.12
	Sepulveda Boulevard	Between Runway 25L and Interstate 105	1.85
Union Station to Fullerton			
Long Beach Airport	Lakewood Boulevard	Between Carson St & Wardlow Rd	0.34
	Spring Street	Between I-405 & Lakewood Blvd	0.23
	Wardlow Road	Between Clark Ave & Lakewood Blvd	0.80
	Lakewood Boulevard	Between I-405 & Spring Street	0.70
	Spring Street	Between Clark Ave & Lakewood Blvd	0.57
Norwalk (LOSSAN)	Bloomfield Avenue	Between Lakeland Road & Allard Street	0.60
	Imperial Highway	Between Norwalk Blvd & Pioneer Blvd	0.92
	Norwalk Boulevard	Between Lakeland Road & Imperial Hwy	0.49
	Shoemaker Avenue	Between Florence Ave & Imperial Hwy	0.68
	Bloomfield Avenue	Between Rosecrans & Imperial Hwy	0.36
	Imperial Highway	Between Carmenita & Shoemaker	1.30
	Norwalk Boulevard	Between Interstate 5 & Imperial Hwy	0.65
Norwalk (UP)	Firestone Boulevard	Between Studebaker & Interstate 605	0.73
	Foster Road	Between San Antonio & Pioneer	0.48
	Imperial Highway	Between Interstate 605 & Studebaker	0.84
	Pioneer Boulevard	Between Lakeland & Interstate 5	0.40
	Studebaker Road	Between Florenace Ave & Firestone	0.48
	Firestone Boulevard	Between San Antonio & Pioneer	0.59
	Imperial Highway	Between Norwalk & Interstate 5	0.92
	Pioneer Boulevard	Between Rosecrans & Foster Rd	0.36
	Studebaker Road	Between Rosecrans & Foster Rd	0.44
Fullerton TC	Chapman Avenue	Between Harbor & Euclid	0.45
	Commonwealth Ave	Between Highland & Euclid	0.75
	Harbor Boulevard	Between Berkeley & Chapman	1.19
	Lemon Street	Between Berkeley & Chapman	0.46
	Orangethorpe Avenue	Between Highland & Euclid	1.11
	Chapman Avenue	Between Raymond & Lemon	0.82

Station	Route	Cordon	Volume / Capacity
	Commonwealth Ave	Between Raymond & Lemon	0.79
	Harbor Boulevard	Between SR-91 & Orangethorpe Ave	1.36
	Lemon Street	Between SR-91 & Orangethorpe Ave	0.69
	Orangethorpe Avenue	Between Raymond & Lemon	0.82
Fullerton to Irvine			
Anaheim TC	Katella Avenue	Between Lewis & Interstate 5	0.44
	Main Street	Just south of Cerritos Avenue	0.32
	Orangewood Avenue	State College & Interstate 5	0.70
	State College Boulevard	Between Ball Road & Cerritos	0.76
	Katella Avenue	Between SR-57 & Howell Ave	0.64
	Main Street	Between Collins & Orangewood	0.60
	Orangewood Avenue	Between Main Street & Eckhoff Street	0.35
	State College Boulevard	Between Katella & Interstate 5	0.49
Santa Ana RTC	17th Street	Between Main St and Santiago	0.81
	Grand Avenue	Between 17th and Interstate 5	0.63
	Main Street	Just South of 17th Street	0.78
	Santa Ana Boulevard	Just East of Main Street	0.46
	17th Street	Between Cabrillo Park & Grand	0.37
	Grand Avenue	Just South of Chestnut	1.04
	Main Street	Between Chestnut & 1st Street	0.60
	Santa Ana Boulevard	Just West of Grand Avenue	0.38
Irvine TC	Alton Parkway	Between Interstate 5 & Barrance Pkwy	0.78
	Barranca Parkway	Between Irvine Ctr Dr & Interstate 5	0.63
	Alton Parkway	Between Jeronimo Rd & Toledo Way	0.56
	Barranca Parkway	Between Alton & Bake Parkway	0.95
Irvine to San Juan Capistrano			
San Juan Capistrano	Camino Capistrano	Between San Juan Creek & Del Obispo	1.35
	Del Obispo	Between Del Avion and Alipaz	0.82
	Ortega Highway	Between east of Rancho Viejo	0.52
	Rancho Viejo Road	Just north of Ortega Highway	0.66
	Camino Capistrano	Between Ortega Hwy & Junipero Serra	0.69
San Clemente Stations	Avenida Pico	Between El Camino Real & Interstate 5	0.58
	Avenida Vista Hermosa	Between Calle Frontera & Camino Vera Cruz	0.06
	Calle Frontera	Between Avenida Vista Hermosa & Avenida Pico	0.34
	El Camino Real	Between Avenida Pico & Dana Point	0.43

Station	Route	Cordon	Volume / Capacity
	Avenida Pico	Between Calle Frontera & Camino Vera Crus	0.46
	EL Camino Real	Between Avenida Pico & La Esperanza	0.31
San Juan Capistrano to Oceanside			
Oceanside TC	State Route 76	Just west of Interstate 5	0.47
	Old Highway 101	Just north of SR-76	0.44
	Mission Avenue	Between Interstate 5 and Coast Hwy 101	0.50
	Oceanside Boulevard	Between Interstate 5 and Coast Hwy 101	0.29
	Old Highway 101	Just north of Oceanside Blvd	0.55
Oceanside to University Towne Centre			
Solana Beach	Lomas Santa Fe Drive	Just west of Interstate 5	0.62
	Old Highway 101	At the San Elijo Lagoon Crossing	0.63
	Via De La Valle	Between Valley and Cedros	0.30
	Old Highway 101	Just north of Via De La Valle	0.43
University Towne Centre (UTC)	Genesee Avenue	Between Interstate 5 & Voigt Drive	0.59
	La Jolla Village Drive	Between Interstate 5 & Lebon Drive	0.90
	Nobel Drive	Between Interstate 5 & Lebon Drive	0.36
	Regents Road	Between Genesse Ave & Eastgate	0.57
	Genesee Avenue	Between Nobel Drive & Rose Canyon	1.45
	La Jolla Village Drive	Between I-805 & Towne Centre Drive	1.00
	Nobel Drive	Between Towne Centre & I-805	0.06
	Regents Road	Between Nobel Drive & Arriba	0.35
University Towne Centre to Santa Fe Depot			
Santa Fe Depot	1st Avenue	Just north of Market Street	0.34
	10th Avenue	Between Broadway & Ash Street	0.49
	11th Avenue	Between Broadway & Ash Street	0.55
	Ash Street	Between 1st Ave & Pacific Hwy	0.45
	Broadway	Between Pacific Hwy & Harbor Drive	0.19
	North Harbor Drive	Between Laurel & Hawthorne	0.58
	Pacific Highway	Between Laurel & Hawthorne	0.16
	Broadway	Just west of 10th Avenue	0.56
	North Harbor Drive	Between 1st Ave & Pacific Hwy	0.25
	Pacific Highway	Between Broadway & Harbor Drive	0.09

Figure 2.4-1: Los Angeles to San Diego Link Level Existing Conditions

Figure 2.4-2: Los Angeles to San Diego Station Level Existing Conditions – LAX

Figure 2.4-3: Los Angeles to San Diego Station Level Existing Conditions – Long Beach Airport

Figure 2.4-4: Los Angeles to San Diego Station Level Existing Conditions – Norwalk (LOSSAN)

Figure 2.4-5: Los Angeles to San Diego Station Level Existing Conditions – Norwalk (UP)

Figure 2.4-6: Los Angeles to San Diego Station Level Existing Conditions – Fullerton

Figure 2.4-7: Los Angeles to San Diego Station Level Existing Conditions – Anaheim

Figure 2.4-8: Los Angeles to San Diego Station Level Existing Conditions – Santa Ana

Figure 2.4-9: Los Angeles to San Diego Station Level Existing Conditions – Irvine

Figure 2.4-10: Los Angeles to San Diego Station Level Existing Conditions – San Juan Capistrano

Figure 2.4-11: Los Angeles to San Diego Station Level Existing Conditions – San Clemente

Figure 2.4-12: Los Angeles to San Diego Station Level Existing Conditions – Oceanside

Figure 2.4-13: Los Angeles to San Diego Station Level Existing Conditions – Solana Beach

Figure 2.4-14: Los Angeles to San Diego Station Level Existing Conditions – University Towne Centre

Figure 2.4-15: Los Angeles to San Diego Station Level Existing Conditions – San Diego

2.5 EXISTING CONDITIONS FOR GOODS MOVEMENT (TRUCK/FREIGHT) IN THE STUDY AREA

Southern California is arguably one of the largest goods movements regions in world, and is home to the largest cargo ship ports in North America. Despite the large amount of goods movements occurring within the region, very little is shipped between Los Angeles and San Diego. Currently, there are only two major methods of goods movements between Los Angeles and San Diego via Orange County. The first method is via the Burlington Northern Santa Fe (BNSF) Railway, which has trackage rights through Orange and San Diego County. The second is via commercial trucking along Interstate 5. Aviation and Cargo ship traffic was determined to be negligible and therefore was not included in this document.

A. RAIL FREIGHT MOVEMENT

San Diego Subdivision (LOSSAN Corridor)
BNSF is the sole rail freight operator between San Diego and Los Angeles. The railroad has no active customers between Del Mar and Oceanside. In North San Diego County, BNSF serves the Marine Corps Base at Camp Pendleton. On average, 6 to 8 freight trains travel between San Diego and Los Angeles within a 24-hour time period. Service within this corridor is focused in the following three areas:

- Auto Transload Service in San Diego
- Lumber, Fly Ash, and Cement
- Local Freight Service (Service to Escondido and Miramar)

Harbor Subdivision
The Harbor Subdivision, runs from Redondo Junction in the City of Vernon, west towards LAX, then south toward the Ports of Los Angeles and Long Beach. This right-of-way was once the primary freight corridor for the Atchison, Topeka and Santa Fe (now BNSF) from the Ports of Los Angeles and Long Beach to the rest of North America. Since the opening of the Alameda Corridor, the Los Angeles County Metropolitan Transportation Authority has purchased the right-of-way, although BNSF retains trackage rights. A minimal amount of freight traffic currently operates along this corridor.

Union Pacific Santa Ana Branch
The northern segment of this alternative alignment under study is a part of the old Southern Pacific (now Union Pacific) San Pedro Subdivision, which was once that railroads' primary freight transportation corridor to the Ports of Los Angeles and Long Beach. Currently, the Union Pacific Santa Ana Branch line, which parallels Firestone Boulevard east of the San Pedro Subdivision, is used by local freight services on a weekly basis. The branch line currently terminates in the City of Anaheim.

B. TRUCKING MOVEMENT

According to the Southern California Freight Management Case Study conducted by the Los Angeles County Metropolitan Transportation Authority, Caltrans and SCAG, the southern California region shipped 319 million tons of freight via truck in 1995, with some freeways handling up to 40,000 trucks each day. The majority of this freight movement travels east out the Los Angeles area, towards San Bernardino.

For truck traffic between the Los Angeles and Orange County metropolitan area and San Diego, the San Diego Association of Governments estimates that 57.8 million tons of cargo was carried via truck across the county borders in 2002. It is not known what percentage of this was attributed to truck traffic along Interstate 5. Interstate 5 is one of only 3 major interstate highways that cross the San Diego County border.

Figure 2.5-1 Goods Movement Impact Analysis Area

2.6 EXISTING CONDITIONS FOR PARKING IN THE VICINITY OF STATIONS AND AIRPORTS

Current information for intercity travel parking conditions around existing or proposed station locations was accumulated where data was available. Existing demand calculations are for intercity trips only, unless otherwise stated. The parking information was obtained from the regional commuter rail services, Amtrak, and various airport master plans, and is summarized in Table 2.6-1 below. Baseline 2000 demand for Oceanside and Solana Beach include demand for Coaster service. Individual demand for each type of rail service at these stations was not available.

Table 2.6-1
Existing Parking Conditions

Station Area	Baseline 2000 Parking	Baseline 2000 Demand	Comments
LAX	29,500	27,000	
Long Beach Airport	N/A	N/A	No existing information available
Norwalk (LOSSAN)	190	N/A	No known plans to increase station parking capacity
Norwalk (U.P.)	N/A	N/A	Station does not currently exist
Fullerton	447	218	
Anaheim	401	126	
Santa Ana	722	135	
Irvine	547	107	
San Juan Capistrano	180	169	No known plans to increase station parking capacity
Oceanside	625	742*	
Solana Beach	249	236*	
University Towne Centre	N/A	N/A	Station does not currently exist
Santa Fe Depot	0	N/A	No parking currently exists or is planned for the Santa Fe Depot

* Includes both Amtrak and Coaster demand

3.0 EVALUATION METHODOLOGY

The traffic, transit, circulation and parking analyses for this program-level EIR/EIS were focused on a broad comparison of potential impacts to traffic, transit, circulation and parking along corridors for each of the alternatives (modal and high-speed train alternatives) and around stations. The potential impacts for each of these alternatives were compared with the No-Project/No-Action Alternative.

Highway, roadways, passenger transportation services (bus, rail, air, intermodal), transit facilities, goods movements and parking issue were evaluated in the analyses. Transportation facilities, highways and roadways included in the analyses: 1) serve as the primary means of access to proposed rail stations and airport facilities as well as highway/roadway improvements/new facilities in the Modal Alternative; and 2) are within one mile of proposed rail stations and (in the Modal Alternative) airports and major routes along alignment/highway corridors.

Initial analysis included identifying primary routes to be considered including highways designated in the No-Project and Modal alternatives and all modes of access to the stations areas and airport areas in the Modal and HST Alternatives, respectively. The primary routes/modes of access for the stations and airports considered assumptions for distribution of trips by direction.

Once primary routes were identified, screenlines or cordons combining segments of the primary routes which reasonably represent locations for evaluating in the aggregate baseline traffic and public passenger transportation conditions (using data for 2002, 2020 or other similar years as available) in the morning peak-hour were selected. The use of screenlines or cordons is necessitated by the scale of this analysis with its requirement to evaluate roadway conditions throughout the state. A more detailed analytical framework must necessarily be reserved for future analyses of individual projects.

Screenlines, especially on intercity highway links, have been selected to represent typical conditions. The data used in the evaluation of traffic volumes and capacities at the screenlines therefore are typical values based on averages over time and represented in traffic forecasting tools used by the regional transportation planning agencies. As such, the conditions indicated in the evaluation may not always reflect the experiences of travelers at any particular place at any specific time. For example, localized capacity restrictions (e.g., bottlenecks at a given interchange) are not well-represented in those regional traffic models. In addition, incidents on the road such as accidents and vehicle breakdowns (non-recurring congestion) are not represented in regional traffic models. This unpredictable type of incident is responsible for the majority of congestion in urban highway networks. The result of these limitations of the methodology and data used in this analysis is that many times the level of service shown in the evaluation may be more optimistic than what would actually be experienced on the roadway under the forecasted conditions. Thus, it is important to consider the differences between the alternatives compared versus focusing on the absolute value of the indicators (v/c, level of service).

No new traffic counts were made where data was not available, and the respective MPO regional travel forecasting models were assumed sufficiently accurate for purposes of forecasting traffic on the screenlines or cordons chosen. Next baseline conditions were evaluated using the following methodology:

- Baseline (2002 and 2020 as available data allowed) ratios of demand to capacity across each screenline or cordon for roadway and public transportation facilities were established using counts and forecasts from Regional MPO's and Highway Capacity Manual standards for capacity.
- Baseline conditions (2002, 2020) were established for roadways based on available counts of existing weekday-morning peak-hour traffic volumes on roadway segments (not

intersections) to be analyzed. This involved comparing existing volumes to capacity (V/C) to determine level of service at link level.

- Baseline conditions were established through available counts of existing weekday-morning peak-hour loading on public transportation links and services. No new traffic counts were undertaken when data was not available. This entailed comparing existing loading to theoretical capacity of service or facility to determine load factor at the link level; using standard Highway Capacity Manual for Capacity
- Baseline conditions (2002, 2020) were characterized for goods movement (truck/freight) in the general area of study (primarily to identify key goods movement means/corridors) and for parking in the vicinity of stations and airports. Parking conditions are based on 2002 parking reserves, local plans for major parking expansion, and adequacy of local parking codes for meeting No-Project growth in demand.

Trip generation was then calculated by adding to baseline volumes forecasted 2020 demand for high-speed rail and (for the Modal alternative) airports, or highways comprising alternatives, plus local trips in 2020 generated by project-related development (as data are available) and trips due to induced growth. Additional trips were distributed to the identified screenlines or cordons (roadway and public transportation) and added those trips to the appropriate baseline volumes for each screenline or cordon. Next, additional trips were distributed for selected segments/links on primary regional routes and modes of access to stations and similar facilities by adding No-Project volumes obtained from 2020 forecasts (from regional and local agencies), and 2020 travel demand generated by alternatives, to the key accessing facilities (roadways, transit links). This distribution was done at a screenline level to reduce the subjectivity of assigning trips to specific facilities. This involved the following methodology:

- For each screenline or cordon (roadway and public transportation), new ratios or demand to capacity were calculated. Demand is the baseline volumes plus additional trip generation that is available (i.e., trips from project-related development and induced growth may not be available initially); screenline or cordon (roadway and public transportation) capacity is the baseline capacity plus any improvements included in the alternative being analyzed.
- Link-level analysis of impacts was performed to roadways for weekday morning peak-hour conditions:
- Future No-Project link-capacity conditions were established through available plans from local and regional agencies.
- Screenlines or cordons were evaluated, qualitatively, if alternatives would change link capacity (street closure, grade separation, etc.).
- Future roadway V/C on selected segments by comparing future volumes with and without alternatives with future capacity were determined. Future V/C with and without alternatives were analyzed. This assessment was done at a screenline level for major facilities accessing stations or airports. Capacity levels were based on the Highway Capacity Manual, 1996.
- Link-level analysis of impacts to public transportation services was performed for weekday morning peak-hour conditions.
- Future no-project service or link capacity through available plans from local and regional agencies was established.
- Future link load factors were determined by comparing the future volumes with and without alternatives with future capacity of selected links and services.
- Impacts were determined by comparing future load factors with and without alternatives.

Summary tables for the region were then completed that identify impacts on highways/roadways (at screenline), public transportation services, goods movement, and parking facilities. Highway/roadway impacts are compared by volume to capacity (V/C) ratios and Levels of Service (LOS). The impacts on public transportation services, goods movement, and parking facilities are described and ranked as 'high', 'medium', or 'low' in the summary table according to the potential extent of change to transit, circulation and parking.

The final step included identifying mitigation strategies for avoidance of potential impacts related to traffic, circulation and parking. Most mitigations involved subsequent analysis of traffic, circulation or parking in the next phase of work.

4.0 TRAFFIC, TRANSIT, CIRCULATION AND PARKING IMPACTS

4.1 NO-PROJECT ALTERNATIVE

The future 2020 No-Project Alternative represents volumes from funded improvements determined by the MPO's in addition to the volumes forecasted for intercity trips. The Volume-to-Capacity ratios are determined by dividing this volume by the planned capacity of each arterial or highway. The following sections compare the existing conditions for traffic, transit, goods movement and parking to the 2020 No-Project Alternative. Impacts are illustrated in Figures 4.1-1 through 4.1-15 at the end of this section.

4.1.1 Key Impacts and Overall Comparison with Existing Conditions

A corridor wide analysis of the No-Project Alternative is provided in Table 4.1-1 below. Forecast numbers received from the MPO's of Los Angeles and Orange Counties are 2025 baseline numbers. To reflect the most accurate information possible, this information is not interpolated to reflect 2020 forecasts and is used to represent the future condition.

Table 4.1-1
Detailed Traffic Impact Analysis Table for the No-Project Alternative
Los Angeles to San Diego via Orange County

	Existing AM Peak Hour Direction Volumes	Existing V/C, LOS	No-Project AM Peak Hour Direction Volumes	No-Project V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Union Station to LAX						
Alignments						
Harbor Subdivision (Aggregate Total)		**1.20 F**		**2.01 F**	**+40.3%**	
Inglewood Ave	8,953	1.18	15,035	1.98	+40.4%	
Exposition Blvd	9,768	1.22	16,350	2.04	+40.2%	
Stations						
LAX Terminal (Aggregate Total)		**0.72 C**		**0.97 E**	**+25.8%**	
Century Blvd	1,159	0.32	1,320	0.37	+13.5%	
La Tijera Blvd	1,145	0.64	1,528	0.85	+24.7%	
Lincoln Blvd	1,279	0.47	1,832	0.68	+30.9%	
Sepulveda Blvd (N)	3,571	0.79	4,610	1.02	+22.5%	
Sepulveda Blvd (S)	4,985	1.85	6,836	2.53	+26.9%	
Westchester Pkwy	217	0.12	429	0.24	+50.0%	

	Existing AM Peak Hour Direction Volumes	Existing V/C, LOS	No-Project AM Peak Hour Direction Volumes	No-Project V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Union Station to Fullerton						
Alignments						
LOSSAN Corridor (Aggregate Total)		**1.05 F**		**1.33 F**	**+21.1%**	
Lakewood Blvd	8,421	1.05	12,763	1.33	+21.1%	
UP Santa Ana Line (Aggregate Total)		**1.04 F**		**1.20 F**	**+15.8%**	
Artesia Blvd	6,256	1.04	11,473	1.20	+15.8%	
Airport						
Long Beach Airport (Aggregate Total)		**0.52 A**		**0.59 A**	**+11.9%**	
Lakewood Blvd (N)	1,236	0.34	2,028	0.56	+39.3%	
Lakewood Blvd (S)	1,903	0.70	2,374	0.88	+20.5%	
Spring St (E)	2,051	0.57	2,047	0.57	0%	
Spring St (W)	405	0.23	179	0.10	- 56.5%	
Wardlow Rd	1,446	0.80	1,346	0.75	- 6.3%	
Stations						
Norwalk (LOSSAN) (Aggregate Total)		**0.71 C**		**0.70 C**	**- 1.4%**	
Bloomfield Ave (N)	1,083	0.60	1,117	0.62	+3.2%	
Bloomfield Ave (S)	641	0.36	775	0.43	+16.3%	
Imperial Hwy (E)	2,345	1.30	2,198	1.22	- 6.2%	
Imperial Hwy (W)	2,488	0.92	2,389	0.88	- 4.3%	
Norwalk Blvd (N)	1,322	0.49	1,591	0.59	+16.9%	
Norwalk Blvd (S)	1,762	0.65	1,638	0.61	- 6.2%	
Shoemaker Ave	1,216	0.68	1,059	0.59	- 13.2%	
Norwalk (UP) (Aggregate Total)		**0.61 B**		**0.63 A**	**+3.2%**	
Firestone Blvd (N)	1,310	0.73	1,201	0.67	- 8.2%	
Firestone Blvd (S)	1,057	0.59	1,069	0.59	0%	
Foster Rd	856	0.48	850	0.47	- 2.1%	
Imperial Hwy (E)	2,488	0.92	2,389	0.88	- 4.3%	
Imperial Hwy (W)	2,279	0.84	2,231	0.83	- 1.2%	
Pioneer Blvd (N)	715	0.40	1,043	0.58	+31.0%	
Pioneer Blvd (S)	652	0.36	597	0.33	- 8.3%	
Studebaker Rd (N)	864	0.48	1,011	0.56	+14.3%	
Studebaker Rd (S)	798	0.44	928	0.52	+15.4%	

	Existing AM Peak Hour Direction Volumes	Existing V/C, LOS	No-Project AM Peak Hour Direction Volumes	No-Project V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Fullerton TC (Aggregate Total)		**0.84 D**		**0.77 C**	**- 8.3%**	
Chapman Ave (E)	1,540	0.82	1,045	0.56	- 31.7%	
Chapman Ave (W)	845	0.45	827	0.44	- 2.2%	
Commonwealth (E)	1,480	0.79	1,348	0.72	- 8.9%	
Commonwealth (W)	1,400	0.75	1,377	0.74	- 1.3%	
Harbor Blvd (N)	2,236	1.19	3,331	1.19	0%	
Harbor Blvd (S)	2,545	1.36	2,714	0.97	- 28.7%	
Lemon St (N)	853	0.46	1,384	0.74	+37.8%	
Lemon St (S)	1,295	0.69	1,184	0.63	- 8.7%	
Orangethorpe (E)	1,544	0.82	1,755	0.63	- 23.2%	
Orangethorpe (W)	2,078	1.11	2,400	0.85	- 23.4%	
Fullerton to Irvine						
Alignments						
LOSSAN Corridor (Aggregate Total)		**0.96 E**		**1.51 F**	**+36.4%**	
State Route 55	11,105	0.96	17,545	1.51	+36.4%	
Stations						
Anaheim TC (Aggregate Total)		**0.55 A**		**0.50 A**	**- 9.1%**	
Katella Ave (E)	1,784	0.64	1,912	0.68	+5.9%	
Katella Ave (W)	1,230	0.44	1,416	0.38	- 13.6%	
Main St (N)	593	0.32	553	0.30	- 6.3%	
Main St (S)	1,133	0.60	1,052	0.37	- 38.3%	
Orangewood (E)	648	0.35	660	0.35	0%	
Orangewood (W)	1,303	0.70	899	0.48	- 31.4%	
State College (N)	2,144	0.76	2,240	0.80	+5.0%	
State College (S)	1,377	0.49	1,484	0.53	+7.5%	
Santa Ana RTC (Aggregate Total)		**0.62 B**		**0.66 B**	**+6.1%**	
17th Street (E)	1,049	0.37	1,498	0.53	+30.2%	
17th Street (W)	2,264	0.81	1,840	0.66	- 18.5%	
Grand Ave (N)	1,186	0.63	1,940	0.69	+8.7%	
Grand Ave (S)	1,956	1.04	2,261	0.81	- 22.1%	
Main St (N)	1,465	0.78	1,676	0.90	+13.3%	
Main St (S)	1,129	0.60	1,419	0.76	+21.1%	
Santa Ana Blvd (E)	1,065	0.38	1,694	0.60	+36.7%	

	Existing AM Peak Hour Direction Volumes	Existing V/C, LOS	No-Project AM Peak Hour Direction Volumes	No-Project V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Santa Ana Blvd (W)	855	0.46	699	0.37	- 19.6%	
Irvine TC (Aggregate Total)		**0.72 C**		**0.75 C**	**+4.0%**	
Alton Pkwy (E)	1,581	0.56	1,701	0.61	+8.2%	
Alton Pkwy (W)	2,187	0.78	2,914	1.04	+25.0%	
Barranca Pkwy (E)	1,785	0.95	1,131	0.60	- 36.8%	
Barranca Pkwy (W)	1,184	0.63	1,320	0.71	+11.3%	
Irvine to San Juan Capistrano						
Alignments						
LOSSAN Corridor (Aggregate Total)		**1.01 F**		**1.27 F**	**+20.5%**	
Alicia Pkwy	11,726	1.01	14,749	1.27	+20.5%	
Stations						
San Juan Capistrano (Aggregate Total)		**0.82 D**		**1.00 F**	**+18.0%**	
Cam Capistrano (N)	650	0.69	1,519	0.81	+14.8%	
Cam Capistrano (S)	2,519	1.35	2,782	1.49	+9.4%	
Del Obispo	769	0.82	1,063	0.57	- 30.5%	Addition of 2 lanes
Ortega Hwy	977	0.52	2,186	1.17	+55.6%	
Rancho Viejo Rd	1,236	0.66	1,851	0.99	+33.3%	
San Juan Capistrano to Oceanside						
Alignments						
LOSSAN Corridor (Aggregate Total)		**1.35 F**		**1.19 F**	**- 11.9%**	
Camino Estrella	10,815	1.35	11,403	1.19	- 11.9%	
Stations						
San Clemente Stations (Aggregate Total)		**0.37 A**		**0.53 A**	**+30.2%**	
Avenida Pico (E)	1,290	0.46	1,605	0.57	+18.9%	
Avenida Pico (W)	1,085	0.58	1,170	0.63	+7.9%	Addition of 1 lane
Avenida Vista Hermosa	106	0.06	1,163	0.62	+90.3%	Arterial not completed yet
Calle Frontera	431	0.34	449	0.36	+5.6%	
El Camino Real (N)	802	0.43	952	0.51	+15.7%	
El Camino Real (S)	578	0.31	781	0.42	+26.2%	

	Existing AM Peak Hour Direction Volumes	Existing V/C, LOS	No-Project AM Peak Hour Direction Volumes	No-Project V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Oceanside TC (Aggregate Total)		**0.45 A**		**0.46 B**	**+2.2%**	
Mission Ave	895	0.50	953	0.53	+5.7%	
Oceanside Blvd	520	0.29	450	0.25	- 13.8%	
Old Highway 101 (N)	789	0.44	846	0.47	+6.4%	
Old Highway 101 (S)	982	0.55	955	0.53	- 3.6%	
State Route 76	847	0.47	957	0.53	+11.3%	
Oceanside to University Towne Centre						
Alignments						
LOSSAN Corridor (Aggregate Total)		**1.08 F**		**0.90 E**	**- 16.7%**	
Tamarack Ave	8,521	1.07	9,020	0.81	- 24.3%	Widening by 4 lanes
Via De La Valle	8,679	1.08	11,506	0.99	- 8.3%	Widening by 4 lanes
Stations						
Solana Beach (Aggregate Total)		**0.49 A**		**0.61 B**	**+19.7%**	
Lomas Santa Fe Dr	1,113	0.62	1,057	0.59	- 4.8%	
Old Highway 101 (N)	1,129	0.63	1,535	0.85	+25.9%	
Old Highway 101 (S)	772	0.43	1,124	0.62	+30.6%	
Via De La Valle	542	0.30	673	0.37	+18.9%	Widened by 2 lanes
UTC (Aggregate Total)		**0.68 B**		**0.65 B**	**- 4.4%**	
Genesee Ave (N)	1,601	0.59	1,893	0.70	+15.7%	
Genesee Ave (S)	2,610	1.45	2,594	0.96	- 33.8%	
La Jolla Village (E)	2,701	1.00	2,092	0.77	- 23.0%	
La Jolla Village (W)	2,442	0.90	2,342	0.87	- 3.3%	
Nobel Dr (E)	108	0.06	886	0.33	+81.8%	Nobel Drive extension to I-805 and Miramar Rd completed in 2003
Nobel Dr (W)	959	0.36	672	0.25	- 30.6%	
Regents Rd (N)	514	0.57	509	0.28	- 50.9%	Regents to be widened by 2 lanes
Regents Rd (S)	626	0.35	1,834	1.02	+65.7%	Regents is assumed to cross Rose Canyon in 2020
University Towne Centre to Santa Fe Depot						
Alignments						
LOSSAN Corridor (Aggregate Total)		**1.05 F**		**1.00 F**	**- 4.8%**	
Balboa Ave	8,394	1.05	8,030	1.00	- 4.8%	

	Existing AM Peak Hour Direction Volumes	Existing V/C, LOS	No-Project AM Peak Hour Direction Volumes	No-Project V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Stations						
Santa Fe Depot (Aggregate Total)		**0.37 A**		**0.48 A**	**+22.9%**	
1st Avenue	925	0.34	1,215	0.45	+17.8%	
10th Avenue	1,320	0.49	1,049	0.39	- 20.4%	
11th Avenue	1,494	0.55	1,938	0.72	+23.6%	
Ash St	1,213	0.45	1,439	0.53	+15.1%	
Broadway (E)	1,012	0.56	1,198	0.67	+16.4%	
Broadway (W)	342	0.19	565	0.31	+38.7%	
N Harbor Dr (N)	1,575	0.58	1,831	0.68	+14.7%	
N Harbor Dr (S)	681	0.25	1,737	0.64	+60.9%	
Pacific Hwy (N)	444	0.16	779	0.29	+44.8%	
Pacific Hwy (S)	253	0.09	442	0.16	+43.8%	

In comparing the No-Project Alternative with the existing conditions shown in Section 2.0, it is not surprising that the volume to capacity ratios are shown to be increasing along most screenlines and cordons. However, this is not the case in certain locations along the corridor, where not only does the V/C ratio not increase from the existing condition, but in fact becomes lower, providing a surprisingly higher level of service. The reason for this decrease in the V/C ratio, specifically around station areas, differs depending on the county. San Diego County's Regional Transportation Plan assumes a strong public transportation base over the next 20 to 30 years, this assumption is reflected heavily in their forecasted traffic models. In addition to this, the forecasted models assume a much higher capacity for Interstate 5, allowing for a higher LOS, even though the volume of vehicles traveling over the highway is increasing.

A corridor wide analysis of the transit, goods movement and parking for the No-Project Alternative is provided in Table 4.1-2 below. Forecast numbers received from the San Diego Association of Governments for future parking at each station represent both intercity and commuter demand. To reflect the most accurate information possible, this information is not interpolated to reflect only intercity forecasts.

Table 4.1-2
Detailed Transit, Goods Movement and Parking Impact Analysis Table for the No-Project Alternative
Los Angeles to San Diego via Orange County

	Public Transit Links over Capacity In Station Area (H,M,L)[1]	Goods Movement Links Impacted (H,M,L)[1]	Parking Facilities with Significant Impact (H,M,L)[1]	Comments/ Notes For impacts
Alignments				
LAX to Union Station	L	L	N/A	No significant impacts to freight due to Alameda Corridor
Union Station to	L	M	N/A	Impacts to freight will likely occur if projected increase in freight and

	Public Transit Links over Capacity In Station Area (H,M,L)[1]	Goods Movement Links Impacted (H,M,L)[1]	Parking Facilities with Significant Impact (H,M,L)[1]	Comments/ Notes For impacts
Fullerton				passenger services occur
Fullerton to Irvine	L	L	N/A	Impacts to freight will be limited due to planned double tracking in Santa Ana
Irvine to San Juan Capistrano	L	L	N/A	
San Juan Capistrano to Oceanside	L	M	N/A	Increased rail service without infrastructure expansion will result in delays
Oceanside to UTC	L	L	N/A	
UTC to Santa Fe Depot	L	L	N/A	
Stations				
Los Angeles International Airport	L	N/A	L	Adequate parking is planned for LAX
Norwalk (Metrolink) Station	L	N/A	H	No known plans to increase the number of spaces
Norwalk (HSR) Station	L	N/A	N/A	Station does not currently exist
Fullerton Transportation Center	L	N/A	L	An additional 87 parking spaces are planned
Anaheim Transportation Center	L	N/A	L	Approximately 600 additional spaces have been proposed for the Anaheim Transportation Center
Santa Ana Regional Transportation Center	L	N/A	L	No additional parking spaces are planned, but existing capacity is projected to accommodate future demand
Irvine Transportation Center	L	N/A	L	Between 2,000 and 4,000 parking spaces could be constructed at the ITC over the next 20 years, in order to accommodate the increasing commuter services
San Juan Capistrano Station	L	N/A	M	There are no known plans to add parking to the station area, which could present some capacity issues in the future.
San Clemente Station Options	L	N/A	N/A	Stations are proposed and do not yet exist
Oceanside Transportation Center	L	N/A	L	Approximately 300 additional parking spaces are planned over the next 20 years
Solana Beach Station	L	N/A	L	Approximately 100 additional parking spaces are planned over the next 20 years
University Towne Centre Transportation	L	N/A	N/A	Station is proposed and does not yet exist

	Public Transit Links over Capacity In Station Area (H,M,L)[1]	Goods Movement Links Impacted (H,M,L)[1]	Parking Facilities with Significant Impact (H,M,L)[1]	Comments/ Notes For impacts
Center				
San Diego Santa Fe Depot	L	N/A	N/A	Station does not currently provide parking, nor is there any plan to add parking in the future
Airports				
Long Beach Municipal Airport	L	N/A	L	Up to 5,500 parking spaces have been planned over the next 20 years

4.1.2 Public Transit Impacts by Screenline and Cordon

Because there is no forecast data for transit trips, capacity, nor demand in the No-Project Alternative, the information in this section is based on inferential data for the existing transit services in the study area. Under the No-Project Alternative, it is assumed that the existing demand and capacity ratios will not change all too dramatically from existing conditions. Existing data for current transit network (i.e., number of transit service routes, frequencies, and span of service) indicate that there is adequate capacity to accommodate today's demand for transit service (refer to Table 2.2-2). Assuming similar conditions, travel demand and behavior of commuters for 2025, it is assumed that there will be no significant impact on public transit services to LAX if no significant improvements to existing public transit service are provided in the No-Project Alternative. This is assuming that the existing transit service is incrementally improved to manage growth in the region.

The following are some of the known transportation improvements planned for implementation in the study area:

A. LACMTA

- Expansion of Blue Line terminating in City of Pasadena (Gold Line)
- Exposition Right-of-Way - this service may feature either BRT operating in exclusive right-of-way or Light-Rail Transit from downtown Los Angeles to Santa Monica.
- Eastside Light Rail Extension – this extension approximately 7 miles long will connect the Eastside with Downtown Los Angeles.

B. OCTA

- CenterLine - OCTA is overseeing preliminary engineering on a light rail system, called The CenterLine, which would travel from The University of California Irvine in the south to the Santa Ana Regional Transportation Center in the north.
- OCTA is currently overseeing a strategic assessment of commuter rail improvements (assessment of service levels, supporting facilities, and services) to the Orange County Line, the Inland Empire to Orange County and the 91 Line. Rail feeder buses (also known as "StationLink" routes) could operate between this station and nearby activity centers during peak periods.
- BRT Demonstration Plan - By the end of 2003, a Bus Rapid Transit (BRT) demonstration project will be implemented, originating from Newport Beach, operating on Harbor Boulevard, to the Fullerton Transportation Center, east on Commonwealth Avenue, to Cal

State University, Fullerton (CSUF), then north on State College Boulevard to the Brea Mall area.

- The planned increases in bus service, incremental restructuring and creation of new bus routes, and the continuation of Metrolink services are expected to provide a degree of improvement within the study area. The CenterLine Project would provide a benefit to travel between western and central Orange County, but would not directly serve the study area.

C. METROLINK

- Addition of 2 new stations – Buena Park and Yorba Linda

D. NCTD

- Sprinter – planned for summer 2003, the Sprinter, new east-west service will provide: short, time-efficient trips between 15 stations. Mid-sized diesel units will be used. The "diesel multiple units" (DMU's) can travel alone or in tandem with additional cars. Because they are diesel driven, no overhead wires, or "catenaries" are required.

E. SAN DIEGO TROLLEY

- Planned trolley expansion to the eastern portion of the service area.

4.1.3 Goods Movement Impacts

Taking into account the projected increase in freight traffic to and from the Alameda Corridor as forecasted by the Los Angeles County Economic Development Council, goods movement between Los Angeles and Fullerton may see some constraints when the projected increase in both commuter and intercity rail service is taken into account. This potential impact will be minimized however with the construction of a planned third main track from Hobart Yard in Vernon to Fullerton Junction. No impacts will occur on the LACMTA Harbor Subdivision between Redondo Junction in Los Angeles and Los Angeles International Airport along the rail corridor. Impacts along Interstate 105 and 110 will be minimal and will be the result of increased traffic along those highways as no improvements are currently planned.

Between Fullerton and San Diego, impacts to goods movement along the rail corridor will be minimal since the increase to rail freight over the next 20 years will be only 3 to 4 trains. Potential locations for impacts will be at segments of the rail corridor where a single track will remain. Impacts along Interstate 5 through Los Angeles and Orange Counties will occur as a result of the increased traffic forecasted along the freeways. Within San Diego County, sufficient improvements to Interstate 5 should minimize any impacts to good movements.

4.1.4 Parking Impacts and Issues

Planned construction of additional parking should provide sufficient parking to intercity travelers at the majority of the stations along the rail corridor over the next 20 years. Exceptions to this include proposed stations, locations where stations do not currently exist, Norwalk, which is currently land constrained, and San Juan Capistrano which is constrained because of the historical resources surrounding the station. Most of the planned parking is being designed to provide for the increasing demand of commuter services in Los Angeles, Orange and San Diego Counties, however there will be adequate additional parking to accommodate an increase in the existing intercity passenger rail service.

Figure 4.1-1 2020 No-Project Alternative

Figure 4.1-2 2020 No-Project Alternative – LAX

Figure 4.1-3 2020 No-Project Alternative – Long Beach Airport

Figure 4.1-4 2020 No-Project Alternative – Norwalk (LOSSAN)

Figure 4.1-5 2020 No-Project Alternative – Norwalk (UP)

Figure 4.1-6 2020 No-Project Alternative – Fullerton

Figure 4.1-7 2020 No-Project Alternative – Anaheim

Figure 4.1-8 2020 No-Project Alternative – Santa Ana

Figure 4.1-9 2020 No-Project Alternative – Irvine

Figure 4.1-10 2020 No-Project Alternative – San Juan Capistrano

Figure 4.1-11 2020 No-Project Alternative – San Clemente

Figure 4.1-12 2020 No-Project Alternative – Oceanside

Figure 4.1-13 2020 No-Project Alternative – Solana Beach

Figure 4.1-14 2020 No-Project Alternative – UTC

Figure 4.1-15 2020 No-Project Alternative – Santa Fe Depot

4.2 MODAL ALTERNATIVE

4.2.1 Trip Generation by Airport or on Roadway

For section 4.2.1, 2020 forecast projections are calculated to determine the annual passenger demand by station area that would be diverted to the three regional airports identified for this study, without the construction of a High Speed Train network. The following table lists the daily trips distributed by mode to each regional airport within the Los Angeles to San Diego via Orange County corridor.

Table 4.2-1
Trip Generation Associated with Intercity Trips by Airport for 2020

			Mode Split				
Airport Area	**Station Area**	**2020 Avg. Daily Passenger Demand**	**Air Connection**	**Bus/Shuttle**	**Taxi**	**Self Park**	**Drop-off**
LAX	Union Station	11,670	4,668	1,751	1,751	2,334	1,167
	LAX	8,991	3,596	1,349	1,349	1,798	899
	Norwalk	5,033	2,013	755	755	1,007	503
Long Beach	Anaheim	6,430	2,572	965	965	1,286	643
	Irvine	9,304	3,722	1,396	1,396	1,861	930
San Diego	Oceanside	2,428	971	364	364	486	243
	UTC	1,749	700	262	262	350	175
	San Diego	10,623	4,249	1,593	1,593	2,125	1,062

4.2.2 Distribution of Trips to/from Airport or along Roadway

Intercity trips calculated for the Modal Alternative are distributed onto the highway network at the selected screenlines, providing additional volumes to the MPO forecasted 2020 scenario similar to the No-Project Alternative. Again, the addition of these trips to the baseline scenario serves to provide an intercity travel component to the MPO baseline forecast, which is seen as being focused primarily on commuter trips. The trips distributed onto the intercity highway network are shown in Figure 4.2-1. The demand along the intercity highway network for the Modal Alternative is the same as with the No-Project Alternative, however the Modal Alternative highway network provides for additional capacity. This increased capacity allows for a lower V/C ratio and a corresponding lower LOS.

Trips distributed along the existing arterial network, serving the selected regional airports, take into account the existing and forecasted traffic flows from the MPO's, surrounding land use developments, and proximity to major highways or freeways, with the highest concentration of trips distributed along the arterials that provide access to the intercity highways network. For the arterials located within the airport area, peak hour trip distributions are shown in Figures 4.2-2 and 4.2-3.

Information provided for Los Angeles and Orange Counties was for forecast year 2025. For this study, the 2025 numbers were utilized, rather than interpolating 2020 data, because they reflect a more validated scenario that has already been accepted by most of the regional governments.

Figure 4.2-1 2020 Modal Alternative

Figure 4.2-2 2020 Modal Alternative Estimated Peak Hour Trip Distribution – LAX

Figure 4.2-3 2020 Modal Alternative Estimated Peak Hour Trip Distribution – Long Beach Airport

4.2.3 Roadway Impacts by Screenline or Cordon

The future 2020 (or 2025) V/C ratios for the Modal Alternative are determined in a similar method to the No-Project Alternative. The volumes for the Modal Alternative are derived from adding the baseline 2020 (or 2025) volumes provided by the regional MPO's to the forecasted intercity trip volumes, then dividing this volume by an expanded capacity for each arterial or highway. This expanded capacity is determined by adding additional lanes to the planned capacity provided by each MPO. The number of additional lanes provided for each highway or arterial segment are calculated based on the number of passenger trips forecasted to travel along that segment without the operation of a High Speed Train system. A corridor wide analysis of the Modal Alternative is provided in Table 4.2-2 below.

Table 4.2-2
Detailed Traffic Impact Analysis Table for the Modal Alternative
Los Angeles to San Diego via Orange County

	No-Project AM Peak Hour Direction Volumes	No-Project V/C. LOS	Modal AM Peak Hour Direction Volumes	Modal V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Alignments						
LAX to Union Station (Aggregate Total)		**2.01 F**		**1.60 F**	**- 20.4%**	
Inglewood Ave	15,035	1.98	15,035	1.57	- 20.7%	Widened by 2 lanes
Exposition Blvd	16,350	2.04	16,350	1.63	- 20.1%	Widened by 2 lanes
Union Station to Fullerton (Aggregate Total)		**1.27 F**		**1.05 F**	**- 17.3%**	
gLakewood Blvd	12,763	1.33	12,763	1.10	- 17.3%	Widened by 2 lanes
Artesia Blvd	11,473	1.20	11,473	0.99	- 17.5%	Widened by 2 lanes
Fullerton to Irvine (Aggregate Total)		**1.51 F**		**1.29 F**	**- 14.6%**	
State Route 55	17,545	1.51	17,545	1.29	- 14.6%	Widened by 2 lanes
Irvine to San Juan Capistrano (Aggregate Total)		**1.27 F**		**1.08 F**	**- 15.0%**	
Alicia Pkwy	14,749	1.27	14,749	1.08	- 15.0%	Widened by 2 lanes
San Juan Capistrano to Oceanside (Aggregate Total)		**1.19 F**		**0.98 E**	**- 17.6%**	
Camino Estrella	11,403	1.19	11,403	0.98	- 17.6%	Widened by 2 lanes
Oceanside to UTC (Aggregate Total)		**0.90 E**		**0.77 C**	**- 14.4%**	
Tamarack Ave	9,020	0.81	9,020	0.68	- 16.0%	Widened by 2 lanes
Via De La Valle	11,506	0.99	11,506	0.85	- 14.1%	Widened by 2 lanes
UTC to San Diego (Aggregate Total)		**1.00 F**		**0.80 D**	**- 20.0%**	
Balboa Ave	8,030	1.00	8,030	0.80	- 20.0%	Widened by 2 lanes

	No-Project AM Peak Hour Direction Volumes	No-Project V/C. LOS	Modal AM Peak Hour Direction Volumes	Modal V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Airports						
LAX Terminal (Aggregate Total)		**0.97 E**		**1.03 F**	**+5.8%**	
Century Blvd	1,320	0.37	1,495	0.42	+11.9%	
La Tijera Blvd	1,528	0.85	1,604	0.89	+4.5%	
Lincoln Blvd	1,832	0.68	1,912	0.71	+4.2%	
Sepulveda Blvd (N)	4,610	1.02	4,890	1.09	+6.4%	
Sepulveda Blvd (S)	6,836	2.53	7,286	2.70	+6.3%	
Westchester Pkwy	429	0.24	450	0.25	+4.0%	
Long Beach Airport (Aggregate Total)		**0.59 A**		**0.64 B**	**+7.8%**	
Lakewood Blvd (N)	2,028	0.56	2,123	0.59	+5.1%	
Lakewood Blvd (S)	2,374	0.88	2,584	0.96	+8.3%	
Spring St (E)	2,047	0.57	2,142	0.60	+5.0%	
Spring St (W)	179	0.10	249	0.14	+28.6%	
Wardlow Rd	1,346	0.75	1,531	0.85	+11.8%	

Table 4.2-3
Detailed Transit, Goods Movement and Parking Impact Analysis Table for the Modal Alternative as Compared with the No-Project Alternative
Los Angeles to San Diego via Orange County

	Public Transit Links over Capacity In Station Area (H,M,L)[1]	Goods Movement Links Impacted (H,M,L)[1]	Parking Facilities with Significant Impact (H,M,L)[1]	Comments/ Notes For impacts
Alignments				
LAX to Union Station	L	L	N/A	
Union Station to Fullerton	L	M	N/A	Increased traffic along the rail corridor will still provide impacts without further improvements
Fullerton to Irvine	L	L	N/A	
Irvine to San Juan Capistrano	L	L	N/A	
San Juan Capistrano to Oceanside	L	L	N/A	
Oceanside to UTC	L	L	N/A	
UTC to Santa Fe Depot	L	L	N/A	

	Public Transit Links over Capacity In Station Area (H,M,L)[1]	Goods Movement Links Impacted (H,M,L)[1]	Parking Facilities with Significant Impact (H,M,L)[1]	Comments/ Notes For impacts
Airports				
Los Angeles International Airport	L	N/A	L	
Long Beach Municipal Airport	L	N/A	L	

4.2.4 Public Transit Impacts by Screenline and Cordon

Under the Modal Alternative, forecast data indicate that transit ridership will increase in the LOSSAN corridor (demand remains the same as in the HST Alternative). To accommodate forecasted increase in the demand for transit services, some transit service improvements may be needed to provide the necessary levels of service from/to the two regional airports identified for this study: LAX, and Long Beach Airport.

However, since the data provided does not dictate to which transit agency these total trips are distributed, it is difficult to determine exactly what services need improvement. Thus, proxies have been utilized to determine the potential impact to each proposed airport. In determining the potential impact to forecasted transit service in 2020 to each proposed regional airport, existing transit service characteristics including span of service, service frequency, and total number of trips were analyzed and compared to future trips estimated by the model.

Forecast data shows the total transit trip generation to each regional airport as follows:

- LAX: 41 trips in the peak period; 275 daily trips
- Long Beach Airport: 25 trips in the peak period; 168 daily trips

Based on the existing number of transit service routes, frequencies, and span of service (refer to Table 2.2-2) to each of the two regional airports considered, there will be no significant impact on public transit services to LAX if no significant improvements to existing public transit service are provided in the Modal Alternative. This is assuming that the existing transit service is incrementally improved to manage absolute growth in the region, regardless of the Modal Alternative.

There may however be some impacts to transit services serving the Long Beach Airport. Currently, Long Beach Transit (LBT) routes 111 and 102 serve the airport and immediate areas adjacent to airport.

Route 111 may require headway (frequency) improvements for weekday night service, currently anywhere from 30-60 minutes. Improved headways may also be required during the weekends, all day (currently from 50-60 minutes. LBT route 102 currently serves the area immediately south of the Long Beach airport. Consequently, if future demand warrants it may be necessary to divert this route to directly serve the bus stop at the Long Beach Airport. LBT route 102 may also need significant improvements to accommodate the generated demand in 2020. Based on existing transit operational data, route 102 may need headway improvements during weekday nights, currently from 30-90 minutes. Weekday span of service may also need to be extended from current hours of service (5:41a-9:19p), to extend transit service later on in the evenings. There is currently no weekend service on route 102. Consequently, service may also be warranted on the weekends on route 102, possibly mirroring the headways for weekday service, based on demand.

4.2.5 Goods Movement Impacts

The movement of goods by rail or highway is not greatly affected in the modal alternative. The identified improvements to the capacity of the existing transportation system will provide a positive impact to the movement of goods by highway. Impacts to the movement of goods by rail are negligible as no transportation improvement is identified that could impact the rail system. Figure 4.2-4, on the following page, illustrates the primary goods movement corridors between Los Angeles and San Diego and any potential impact to the systems as a result of the Modal Alternative.

4.2.6 Parking Impacts and Issues

Without the High Speed Train system, the demand at the regional airports is expected to increase dramatically. Additional parking should be provided at each airport to accommodate the predicted increase in the number of passengers. For this study, the forecasted impacts to the parking at LAX and Long Beach Municipal Airport are outlined below in Table 4.2-3.

Table 4.2-3
Parking Impacts at Regional Airports

Station	Associated Station Areas	2020 Forecast Annual Passenger Demand by Airport	Total Existing Required	Total Existing Available	Total Planned
Los Angeles International Airport	LAX Union Station Norwalk	9,400,000	27,000	29,500	44,250
Long Beach Municipal Airport	Anaheim Irvine	4,900,000	950	N/A	5,500

Figure 4.2-4 2020 Modal Alternative – Goods Movement Impact Areas

4.3 HIGH SPEED TRAIN ALTERNATIVE

4.3.1 Trip Generation by Rail Station

The operation of a High Speed Train is calculated to generate a total of 41,527 Average Daily Boardings along the Los Angeles, Orange, and San Diego County segment of the statewide High Speed Train System. Using basic assumptions, provided in the Appendix, to calculate the number of persons per vehicle mode, trip generations are calculated for each station area.

Table 4.3-1
HST Trip Generation by Station

		Daily Mode Split (# of Vehicles)				
Station	**2020 Avg. Daily Boardings**	**Bus/Shuttle**	**Taxi**	**Self Park**	**Drop-off**	**Total**
LAX	4,350	47	267	230	230	774
Norwalk	3,621	39	73	763	572	1,447
Fullerton	2,000	22	40	632	211	905
Anaheim	6,876	50	276	1,267	1,086	2,679
Santa Ana	1,221	22	49	225	193	489
Irvine	3,085	23	124	569	487	1,203
San Juan Capistrano	2,073	23	42	655	219	939
Oceanside	4,876	53	98	770	1,155	2,076
Solana Beach	2,650	29	54	837	279	1,199
UTC	4,975	72	200	917	786	1,975
San Diego	5,800	104	464	306	306	1,180
TOTAL	41,527	484	1,687	7,171	5,524	14,866

The number of trips presented in Table 4.3-1, constitute a percentage of the total number of trips diverted from the intercity highway and air travel network to the High Speed Train.

4.3.2 Distribution of Trips to/from Rail Station

The sum of the intercity trips that are calculated as being diverted from the highway network in the High Speed Train Alternative were removed from the highway network at the selected screenlines. This volume provides a comparison with the Modal and No-Project Alternatives as to the affect the High Speed Train will have on intercity travel. The trips diverted from the intercity highway network are shown in Figure 4.3-1.

At the arterial level around the proposed station locations, the number of trips presented in Table 4.3-1, which are generated by the presence of a High Speed Train station, are added to the baseline 2020 (or 2025) peak hour volume forecast data provided by the MPO and distributed along the existing arterial network, in a similar method to the Modal Alternative. Again, this distribution took into account surrounding land use developments, and proximity to major highways and freeways, with the highest concentration of trips distributed along the arterials that provide access to the intercity highway network. For the arterials located within the station area, 2020 (or 2025) peak hour trip distributions are shown in Figures 4.3-2 through 4.3-13.

Figure 4.3-1 2020 High Speed Train Alternative

Figure 4.3-2 2020 High Speed Train Station Estimated Peak Hour Trip Distribution – LAX

Figure 4.3-3 2020 High Speed Train Station Estimated Pk. Hr. Trip Distribution – Norwalk (LOSSAN)

Figure 4.3-4 2020 High Speed Train Station Estimated Peak Hour Trip Distribution – Norwalk (U.P.)

Figure 4.3-5 2020 High Speed Train Station Estimated Peak Hour Trip Distribution – Fullerton

Figure 4.3-6 2020 High Speed Train Station Estimated Peak Hour Trip Distribution – Anaheim

Figure 4.3-7 2020 High Speed Train Station Estimated Peak Hour Trip Distribution – Santa Ana

Figure 4.3-8 2020 High Speed Train Station Estimated Peak Hour Trip Distribution – Irvine

Figure 4.3-9 2020 High Speed Train Station Estimated Pk. Hr. Trip Distribution – San Juan Capistrano

Figure 4.3-10 2020 High Speed Train Station Estimated Pk. Hr. Trip Distribution – San Clemente

Figure 4.3-11 2020 High Speed Train Station Estimated Peak Hour Trip Distribution – Oceanside

Figure 4.3-12 2020 High Speed Train Station Estimated Peak Hour Trip Distribution – Solana Beach

Figure 4.3-13 2020 High Speed Train Station Estimated Peak Hour Trip Distribution – UTC

Figure 4.3-14 2020 High Speed Train Station Estimated Peak Hour Trip Distribution – Santa Fe Depot

4.3.3 Roadway Impacts by Screenline or Cordon

The future 2020 (or 2025) V/C ratios for the High Speed Train Alternative are determined in a similar method to the other alternatives. The volumes for the High Speed Train Alternative are derived from subtracting the forecasted intercity trips from the volume calculated for the Modal Alternative, then dividing this volume by the baseline 2020 capacity provided by the MPO. A corridor wide analysis of the Modal Alternative is provided in Table 4.3-2 below. Impacts to the intercity highway network are positive due to the resulting diversion of traffic away from the highways to the High Speed Train system. This resulting diversion of traffic however, creates negative impacts on the arterial network surrounding the proposed High Speed Train stations.

Table 4.3-2
Detailed Traffic Impact Analysis Table for the High Speed Train Alternative
Los Angeles to San Diego via Orange County

	No-Project AM Peak Hour Direction Volumes	No-Project V/C, LOS	HST AM Peak Hour Direction Volumes	HST V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Union Station to LAX						
Alignments						
Harbor Subdivision (Aggregate Total)		**2.01 F**		**1.92 F**	**- 4.5%**	
Inglewood Ave	15,035	1.98	14,295	1.88	- 5.1%	
Exposition Blvd	16,350	2.04	15,626	1.95	- 4.4%	
Airport						
Long Beach Airport (Aggregate Total)		**0.52 A**		**0.59 A**	**+11.9%**	
Lakewood Blvd (N)	1,236	0.34	2,028	0.56	+39.3%	
Lakewood Blvd (S)	1,903	0.70	2,374	0.88	+20.5%	
Spring St (E)	2,051	0.57	2,047	0.57	0%	
Spring St (W)	405	0.23	179	0.10	- 56.5%	
Wardlow Rd	1,446	0.80	1,346	0.75	- 6.3%	
Lincoln Blvd	1,832	0.68	1,844	0.68	0%	
Stations						
LAX Terminal (Aggregate Total)		**0.97 E**		**0.98 E**	**+1.0%**	
Century Blvd	1,320	0.37	1,347	0.37	0%	
La Tijera Blvd	1,528	0.85	1,540	0.86	+1.2%	
Lincoln Blvd	1,832	0.68	1,844	0.68	0%	
Sepulveda Blvd (N)	4,610	1.02	4,660	1.04	+1.9%	
Sepulveda Blvd (S)	6,836	2.53	6,912	2.56	+1.2%	
Westchester Pkwy	429	0.24	435	0.24	0%	

	No-Project AM Peak Hour Direction Volumes	No-Project V/C, LOS	HST AM Peak Hour Direction Volumes	HST V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Union Station to Fullerton						
Alignments						
LOSSAN Corridor (Aggregate Total)		**1.33 F**		**1.26 F**	**- 5.3%**	
Lakewood Blvd	12,763	1.33	12,276	1.26	- 5.3%	
UP Santa Ana Line (Aggregate Total)		**1.20 F**		**1.19 F**	**- 0.8%**	
Artesia Blvd	11,473	1.20	11,425	1.19	- 0.8%	
Stations						
Norwalk (LOSSAN) (Aggregate Total)		**0.70 C**		**0.72 C**	**+2.8%**	
Bloomfield Ave (N)	1,117	0.62	1,129	0.63	+1.6%	
Bloomfield Ave (S)	775	0.43	800	0.44	+2.3%	
Imperial Hwy (E)	2,198	1.22	2,233	1.24	+1.6%	
Imperial Hwy (W)	2,389	0.88	2,495	0.92	+4.3%	
Norwalk Blvd (N)	1,591	0.59	1,611	0.60	+1.7%	
Norwalk Blvd (S)	1,638	0.61	1,712	0.63	+3.2%	
Shoemaker Ave	1,059	0.59	1,070	0.59	0%	
Norwalk (UP) (Aggregate Total)		**0.63 B**		**0.64 B**	**+1.6%**	
Firestone Blvd (N)	1,201	0.67	1,218	0.68	+1.5%	
Firestone Blvd (S)	1,069	0.59	1,094	0.61	+3.3%	
Foster Rd	850	0.47	854	0.47	0%	
Imperial Hwy (E)	2,389	0.88	2,439	0.90	+2.2%	
Imperial Hwy (W)	2,231	0.83	2,337	0.87	+4.6%	
Pioneer Blvd (N)	1,043	0.58	1,070	0.59	+1.7%	
Pioneer Blvd (S)	597	0.33	612	0.34	+2.9%	
Studebaker Rd (N)	1,011	0.56	1,026	0.57	+1.8%	
Studebaker Rd (S)	928	0.52	952	0.53	+1.9%	
Fullerton TC (Aggregate Total)		**0.77 C**		**0.78 C**	**+1.3%**	
Chapman Ave (E)	1,045	0.56	1,055	0.56	0%	
Chapman Ave (W)	827	0.44	842	0.45	+2.2%	
Commonwealth (E)	1,348	0.72	1,373	0.73	+1.4%	
Commonwealth (W)	1,377	0.74	1,397	0.75	+1.3%	
Harbor Blvd (N)	3,331	1.19	3,346	1.19	0%	
Harbor Blvd (S)	2,714	0.97	2,754	0.98	+1.0%	

	No-Project AM Peak Hour Direction Volumes	No-Project V/C, LOS	HST AM Peak Hour Direction Volumes	HST V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Lemon St (N)	1,384	0.74	1,389	0.74	0%	
Lemon St (S)	1,184	0.63	1,199	0.64	+1.6%	
Orangethorpe (E)	1,755	0.63	1,774	0.63	0%	
Orangethorpe (W)	2,400	0.85	2,416	0.86	+1.2%	
Fullerton to Irvine						
Alignments						
LOSSAN Corridor **(Aggregate Total)**		**1.51 F**		**1.48 F**	**- 2.0%**	
State Route 55	17,545	1.51	17,216	1.48	- 2.0%	
Stations						
Anaheim TC **(Aggregate Total)**		**0.50 A**		**0.52 A**	**+3.8%**	
Katella Ave (E)	1,912	0.68	2,072	0.74	+8.1%	
Katella Ave (W)	1,416	0.38	1,576	0.42	+9.5%	
Main St (N)	553	0.30	563	0.30	0%	
Main St (S)	1,052	0.37	1,080	0.38	+2.6%	
Orangewood (E)	660	0.35	676	0.36	+2.8%	
Orangewood (W)	899	0.48	945	0.50	+4.0%	
State College (N)	2,240	0.80	2,286	0.81	+1.2%	
State College (S)	1,484	0.53	1,541	0.55	+3.6%	
Santa Ana RTC **(Aggregate Total)**		**0.66 B**		**0.67 B**	**+1.5%**	
17th Street (E)	1,498	0.53	1,503	0.54	+1.9%	
17th Street (W)	1,840	0.66	1,850	0.66	0%	
Grand Ave (N)	1,940	0.69	1,960	0.70	+1.4%	
Grand Ave (S)	2,261	0.81	2,266	0.81	0%	
Main St (N)	1,676	0.90	1,691	0.90	0%	
Main St (S)	1,419	0.76	1,427	0.76	0%	
Santa Ana Blvd (E)	1,694	0.60	1,724	0.61	+1.6%	
Santa Ana Blvd (W)	699	0.37	702	0.37	0%	
Irvine TC **(Aggregate Total)**		**0.75 C**		**0.78 C**	**+3.8%**	
Alton Pkwy (E)	1,701	0.61	1,747	0.62	+1.6%	
Alton Pkwy (W)	2,914	1.04	3,017	1.07	+2.8%	
Barranca Pkwy (E)	1,131	0.60	1,151	0.61	+1.6%	
Barranca Pkwy (W)	1,320	0.71	1,386	0.74	+4.1%	

	No-Project AM Peak Hour Direction Volumes	No-Project V/C, LOS	HST AM Peak Hour Direction Volumes	HST V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Irvine to San Juan Capistrano						
Alignments						
LOSSAN Corridor **(Aggregate Total)**		**1.27 F**		**1.24 F**	**- 2.4%**	
Alicia Pkwy	14,749	1.27	14,375	1.24	- 2.4%	
Stations						
San Juan Capistrano **(Aggregate Total)**		**1.00 F**		**1.02 F**	**+2.0%**	
Cam Capistrano (N)	1,519	0.81	1,543	0.82	+1.2%	
Cam Capistrano (S)	2,782	1.49	2,863	1.53	+2.6%	
Del Obispo	1,063	0.57	1,093	0.58	+1.7%	
Ortega Hwy	2,186	1.17	2,214	1.18	+0.9%	
Rancho Viejo Rd	1,851	0.99	1,874	1.00	+1.0%	
San Juan Capistrano to Oceanside						
Alignments						
LOSSAN Corridor **(Aggregate Total)**		**1.19 F**		**1.15 F**	**- 3.4%**	
Camino Estrella	11,403	1.19	11,028	1.15	- 3.4%	
Stations						
San Clemente Stations **(Aggregate Total)**		**0.53 A**		**N/A**	**N/A**	
Avenida Pico (E)	1,605	0.57	N/A	N/A	N/A	
Avenida Pico (W)	1,170	0.63	N/A	N/A	N/A	
Avenida Vista Hermosa	1,163	0.62	N/A	N/A	N/A	
Calle Frontera	449	0.36	N/A	N/A	N/A	
El Camino Real (N)	952	0.51	N/A	N/A	N/A	
El Camino Real (S)	781	0.42	N/A	N/A	N/A	
Oceanside TC **(Aggregate Total)**		**0.46 B**		**0.51 A**	**+9.8%**	
Mission Ave	953	0.53	1,009	0.56	+5.4%	
Oceanside Blvd	450	0.25	533	0.30	+1.7%	
Old Highway 101 (N)	846	0.47	882	0.49	+4.1%	
Old Highway 101 (S)	955	0.53	1,077	0.60	+11.7%	
State Route 76	957	0.53	1,068	0.59	+10.2%	

	No-Project AM Peak Hour Direction Volumes	No-Project V/C, LOS	HST AM Peak Hour Direction Volumes	HST V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Oceanside to University Towne Centre						
Alignments						
LOSSAN Corridor **(Aggregate Total)**		**0.90 E**		**0.89 D**	**- 1.1%**	
Tamarack Ave	9,020	0.81	8,897	0.79	- 2.5%	
Via De La Valle	11,506	0.99	11,384	0.98	- 1.0%	
Stations						
Solana Beach **(Aggregate Total)**		**0.61 B**		**0.64 B**	**+4.7%**	
Lomas Santa Fe Dr	1,057	0.59	1,164	0.65	+9.2%	
Old Highway 101 (N)	1,535	0.85	1,583	0.88	+3.4%	
Old Highway 101 (S)	1,124	0.62	1,180	0.66	+6.1%	
Via De La Valle	673	0.37	699	0.39	+5.1%	
UTC **(Aggregate Total)**		**0.65 B**		**0.67 C**	**+3.0%**	
Genesee Ave (N)	1,893	0.70	1,929	0.71	+1.4%	
Genesee Ave (S)	2,594	0.96	2,659	0.98	+2.0%	
La Jolla Village (E)	2,092	0.77	2,151	0.80	+3.8%	
La Jolla Village (W)	2,342	0.87	2,451	0.91	+4.4%	
Nobel Dr (E)	886	0.33	905	0.34	+2.9%	
Nobel Dr (W)	672	0.25	742	0.27	+7.4%	
Regents Rd (N)	509	0.28	522	0.29	+3.4%	
Regents Rd (S)	1,834	1.02	1,847	1.03	+1.0%	
University Towne Centre to Santa Fe Depot						
Alignments						
LOSSAN Corridor **(Aggregate Total)**		**1.00 F**		**0.97 E**	**- 3.0%**	
Balboa Ave	8,030	1.00	7,745	0.97	- 3.0%	

	No-Project AM Peak Hour Direction Volumes	No-Project V/C, LOS	HST AM Peak Hour Direction Volumes	HST V/C. LOS	Percent Change from Existing	Comments/ Notes For impacts
Stations						
Santa Fe Depot (Aggregate Total)		**0.48 A**		**0.49 A**	**+2.0%**	
1st Avenue	1,215	0.45	1,222	0.45	0%	
10th Avenue	1,049	0.39	1,069	0.40	+2.5%	
11th Avenue	1,938	0.72	1,945	0.72	0%	
Ash St	1,439	0.53	1,470	0.54	+1.9%	
Broadway (E)	1,198	0.67	1,222	0.68	+1.5%	
Broadway (W)	565	0.31	592	0.33	+6.1%	
N Harbor Dr (N)	1,831	0.68	1,872	0.69	+1.4%	
N Harbor Dr (S)	1,737	0.64	1,751	0.65	+1.5%	
Pacific Hwy (N)	779	0.29	803	0.30	+3.3%	
Pacific Hwy (S)	442	0.16	456	0.17	+5.9%	

Table 4.3-3
Detailed Transit, Goods Movement and Parking Impact Analysis Table for the HST Alternative
Los Angeles to San Diego via Orange County

	Public Transit Links over Capacity In Station Area (H,M,L)[1]	Goods Movement Links Impacted (H,M,L)[1]	Parking Facilities with Significant Impact (H,M,L)[1]	Comments/ Notes For impacts
Alignments				
LAX to Union Station	L	L	N/A	No significant impacts due to Alameda Corridor
Union Station to Fullerton	L	L	N/A	No significant impacts due to quadruple tracking along existing alignment, or dedicated alignment along U.P Santa Ana Subdivision
Fullerton to Irvine	L	L	N/A	Impacts will be limited due to planned double tracking in Santa Ana
Irvine to San Juan Capistrano	L	L	N/A	
San Juan Capistrano to Oceanside	L	M	N/A	Increased service without infrastructure expansion will result in delays
Oceanside to UTC	L	L	N/A	
UTC to Santa Fe Depot	L	L	N/A	

	Public Transit Links over Capacity In Station Area (H,M,L)[1]	Goods Movement Links Impacted (H,M,L)[1]	Parking Facilities with Significant Impact (H,M,L)[1]	Comments/ Notes For impacts
Stations				
Los Angeles International Airport	L	N/A	L	No Parking Impacts will occur because the HST system will provide adequate parking to all stations
Norwalk (Metrolink) Station	L	N/A	L	No Parking Impacts
Norwalk (HSR) Station	L	N/A	N/A	No Parking Impacts
Fullerton Transportation Center	L	N/A	L	No Parking Impacts
Anaheim Transportation Center	L	N/A	L	No Parking Impacts
Santa Ana Regional Transportation Center	L	N/A	L	No Parking Impacts
Irvine Transportation Center	L	N/A	L	No Parking Impacts
San Juan Capistrano Station	L	N/A	L	No Parking Impacts
San Clemente Station Options	L	N/A	L	No Parking Impacts
Oceanside Transportation Center	L	N/A	L	No Parking Impacts
Solana Beach Station	L	N/A	L	No Parking Impacts
University Towne Centre Transportation Center	L	N/A	L	No Parking Impacts
San Diego Santa Fe Depot	L	N/A	L	No Parking Impacts

Additional benefits associated with the improvement of the existing corridor for this alternative include the full grade separation of major arterial and highway crossings. With the projected increase in both passenger and freight rail traffic along this corridor over the next 17 years, these grade separations will dramatically improve safety and vehicular traffic flow at these intersections. There are 78 primary and secondary arterials proposed for grade separation, which include:

A. LOS ANGELES COUNTY

- Serapis
- Passons
- Pioneer Blvd
- Norwalk Blvd
- Los Nietos
- Marquardt, Rosecrans
- Valley View

B. ORANGE COUNTY

- Orangethorpe
- La Palma
- Sycamore
- Broadway
- Santa Ana
- South
- Vermont
- Ball
- Cerritos
- State College
- Eckhoff St.
- Main St.
- Batavia
- Walnut
- Palm Ave
- Chapman Ave
- Almond
- Palmyra
- La Veta
- Fairhaven
- Santa Clara
- Seventeenth
- Santa Ana Blvd
- Fourth
- Chestnut
- Grand
- Lyon
- McFadden
- Ritchey
- Red Hill
- Harvard
- Jeffrey
- Sand Canyon
- Oso Road
- La Zanja St
- Verdugo St
- Del Obispo
- Av Aeropuerto
- Beach Road
- Senda De La Playa
- San Clemente Pier Access

C. SAN DIEGO COUNTY

- Coaster Way
- Surfrider Way
- Mission Avenue
- Wisconsin Ave
- Oceanside Blvd
- Cassidy St
- Grand Ave.
- Carlsbad Village Dr.
- Tamarack Ave.
- Private Road
- Cannon Rd.
- Encinas
- Leucadia Blvd
- D Street
- E Street
- Chesterfield Dr.
- Coast Blvd.
- Edelweiss St. (Sorrento Valley)
- Rosecrans/Taylor
- Noell St.
- Washington St.
- Vine St.
- Sassafrass St.
- Palm St.
- Laurel St.
- Juniper St.
- Hawthorne St.
- Grape St.
- Beech St.
- Ash St.

4.3.4 Public Transit Impacts by Screenline or Cordon

Under the High Speed Train (HST) Alternative, forecast data indicates that transit ridership will increase in the LOSSAN corridor with the introduction of the High Speed Train. The forecasted increase in the demand of additional trips may consequently necessitate improvements to any future planned transit services to the proposed HST stations. However, since the data provided does not dictate to which

transit agency these total trips are distributed, it is difficult to determine exactly what services need improvement. Proxies have been utilized to determine the potential impact to each proposed HST station. In determining the potential impact to forecasted transit service in 2020 to each proposed HST station, existing transit service characteristics including span of service, service frequency, and total number of trips are analyzed and compared to future trips estimated by the model.

Forecast data shows the total transit trip generation to each proposed station as follows:

- Norwalk (LOSSAN) HST Station: 6 trips in the peak period; 39 daily trips
- Norwalk (UP) HST Station: 6 trips in the peak period; 39 daily trips
- Fullerton Station: 4 trips in the peak period; 22 daily trips
- Anaheim HST Station: 8 trips in the peak period; 50 daily trips
- Santa Ana Station: 4 trips in the peak period; 22 daily trips
- Irvine HST Station: 4 trips in the peak period; 23 daily trips
- San Juan Capistrano Station: 4 trips in the peak period; 23 daily trips
- Oceanside Station: 8 trips in the peak period; 53 daily trips
- Solana Beach Station: 5 trips in the peak period; 29 daily trips
- UTC Station: 11 trips in the peak period; 72 daily trips
- San Diego (Santa Fe Depot) Station: 16 trips in the peak period; 104 daily trips

Based on the existing number of transit service routes, frequencies, and span of service provided for each of the HST stations considered (refer to Table 2.2-2), no significant impacts are expected on the public transit system even if no significant improvements to existing public transit service are provided in the HST Alternative. This is assuming that the existing transit service is incrementally improved to manage absolute growth in the region, regardless of the HST Alternative.

4.3.5 Goods Movement Impacts

The movement of goods by rail has the highest impact in this alternative, since the High Speed Train system is proposed to operate along existing rail freight right-of-ways. The rail freight system is subject to several levels of potential impacts, which depend on the HST alignment selected. The highest impact to the movement of goods by rail will occur on the Union Pacific Santa Ana Subdivision, which runs from the City of Vernon to the City of Anaheim, paralleling Firestone Boulevard. The potential need for the acquisition of this right-of-way for the construction of the High Speed Train system would impact the businesses along the rail corridor that currently utilize the services of the Union Pacific Railroad. Another freight corridor which would be impacted, although not as greatly, is the Burlington Northern Santa Fe (BNSF) Harbor Subdivision. This line, which was once BNSF's primary corridor to and from the Ports of Los Angeles and Long Beach, has been all but abandoned since the opening of the Alameda Corridor. Currently, only minimal local traffic occurs, serving the businesses along the corridor. A subsequent impact analyses should be conducted to determine the actual impacts along these corridors.

Little or no impact will occur that will affect the movement of goods along the intercity highway network associated with the operation of a High Speed Train system. Areas of impact along both highway and rail freight corridors are shown in Figure 4.3-14 on the following page.

Figure 4.3-15 2020 High Speed Train Alternative – Goods Movement Impact Areas

4.3.6 Parking Impacts and Issues

With the establishment of a High Speed Train system and subsequent stations, the demand for parking will be dramatically increased. As currently designed, the High Speed Train stations will be transportation hubs, similar in significance to airports, and therefore requiring an extensive infrastructure. Sufficient parking is a large part of this infrastructure. Table 4.3-3 below lists the parking requirements based on mode split and trip generation, compared to the existing available parking at each location.

Table 4.3-4
Parking Impacts of a High Speed Train

Station	Mode Split for Parking Requirements				Total Required for HST	Total Currently Available	Total Currently Planned
	Bus/Shuttle	Taxi	Self Park	Drop-off			
Norwalk (LOSSAN)	1	1	1,143	11	1,156	190	190
Norwalk (UP)	1	1	1,143	11	1,156	N/A	N/A
Fullerton	1	1	947	4	953	447	534
Anaheim	1	4	1,900	21	1,926	401	1,000
Santa Ana	1	1	337	4	342	722	722
Irvine	1	2	852	9	864	547	2,650
San Juan Capistrano	1	1	982	4	987	180	180
Oceanside	2	1	1,155	22	1,180	625	938
Solana Beach	1	1	1,255	5	1,262	249	340
UTC	2	3	1,375	15	1,395	N/A	N/A
San Diego	3	7	458	6	473	0	0

The total required spaces reflect the number of parking spaces that will be necessary for High Speed Train intercity travel uses, and does not reflect any potential increase in local commuter ridership or additional planned transportation systems that may provide service to the station locations. The number of planned parking spaces are those spaces identified by the regional transportation agencies as being necessary to accommodate the expected growth in the existing Commuter Rail and transit services, and may, in some cases, reflect the demand of additional transportation systems to be introduced locally in the future.

At first glance, significant impacts appear in the majority of station locations, with the predicted number of parking spaces required for a High Speed Train overwhelming the planned number of spaces. At stations such as Santa Ana and Irvine, increased service for Commuter Rail and additional planned transportation systems have already incorporated additional parking into the future plan for the stations, which may be adequate for the operation of a High Speed Train or supportive feeder system. However, with the construction of the high-speed train or the improvements to potential feeder services, adequate parking will be incorporated at all station locations where an apparent deficiency is seen to be occurring.

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6.0 SOURCES OF DATA INFORMATION

The following is a list of agencies and persons contacted and/or documents referenced during the preparation of this report.

AGENCIES AND PERSONS CONTACTED

- Tim Byrne, Modeling Department, Orange County Transportation Authority
- Glen Campbell, Master Plan of Arterial Highways, Orange County Transportation Authority
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- Orange County Transportation Authority
- Los Angeles County Metropolitan Transportation Authority
- North County Transit District (San Diego)
- Metropolitan Transit Development Board (San Diego)
- Los Angeles Department of Transportation
- Santa Monica Big Blue Bus
- Culver City Transit
- Torrance Transit
- Norwalk Transit

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- Southern California Association of Governments (SCAG). *2001 Regional Transportation Plan Update*. April 2001
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Appendix A

A. DETAILED COMPARISON TABLES FOR TRAFFIC IMPACTS IN REGION

The following tables outline the detailed traffic impact information, which was calculated and shows the baseline information provided by the Metropolitan Planning Organizations, in addition to the calculated Levels of Service and Volume to Capacity ratios with the added trip generation associated with a High Speed Train. Additional base data is provided in Appendix B on the generated numbers utilized to calculate the impact of a High Speed Train.

Appendix B